SUMMARY

MIGRATION AND EMPLOYMENT IN THE CONSTRUCTION SECTOR:
CRITICAL FACTORS IN EGYPTIAN DEVELOPMENT

by

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The migration of construction workers is having a strong effect on the construction sector and on the economy as a whole. There are costs and benefits to this migration. And there are policy implications that must be clearly understood so that the benefits can be made to outweigh the costs.

1.   The Importance of the Construction Sector

The construction sector is critical to any economy, whether developing or industrialized. The capacity of the construction sector sets a physical limit to the acceleration of growth, since overall investment cannot grow faster than this sector's output. The production desired cannot be imported for the output of the construction sector is a non-traded good; it cannot be transported, but must be produced on the spot. The amount of real output growth which can be achieved in any year when the economy is working close to its overall capacity will depend upon the construction activity accomplished during the previous one, two, or more years.

The timeliness of construction activities is also a central feature of this sector. Scheduling of investment activities must take into account the relatively long and flexible lead times required for the completion of construction. Furthermore, the construction sector has critical intersectoral relations with supplying sectors. The expansion of construction creates demand for the output of several basic industries that produce the components of buildings and construction, i.e., cement, iron, iron bars, bricks, glass,

etc. Capacity and investment in these industries, therefore, depends largely upon the level and rate of increase in the output of construction. In short, the productivity of the construction industry is critical to the productivity of other sectors, and any bottlenecks in construction will invariably affect other sectors in terms of wasted resources.

In most developing countries, capital is scarce and imposes a constraint on the output of the construction sector. However, in Egypt, labor is becoming a particularly scarce factor of production. Labor itself constitutes the bottleneck in construction and, therefore, in overall economic growth.

Since 1973, the growth of investments in the economics of the Gulf region and Libya has required larger inflows of manpower. The "open door" policy in Egypt, which has expanded Egyptian relations with the rest of the world and especially the oil-exporting countries, has facilitated the outflow of workers. Even Jordan, for other reasons, is importing Egyptian labor. The transfers of construction workers reflect the changes in overall migration patterns. These workers exhibit a wide range of skills from engineers, contractors and other technicians, to sand and brick carriers and other unskilled workers. Since 1973, there have been major changes in the patterns of employment for both skilled and less skilled workers. Migration of construction workers is having a critical effect on the Egyptian economy as a whole.

2. Migration of Construction Workers

About 10% of Egypt's labor force is migrating; 53% of all emigration

is in construction; and the stock of Egyptians employed in construction externally may be as high as the domestic construction labor force in 1976.

The increases in domestic wages for construction workers rose by 52.1% between 1974-78, in comparison with 19.8% for services, and 12.7% for mining and industry. Only agricultural wages had the same increases as construction during this period. There is some evidence that wages in the agricultural sector reflect the scarcity of labor due to competition for employment by the construction sector. This sector appears to be pulling labor away from agriculture.

The demand for Egyptian construction workers is both for internal employment and for meeting the gap created by the transfer of labor to other Arab countries. Detailed data on the employment of construction workers in other Arab states is not available, but estimates can be made. Clearly, the greatest proportion of Egyptian construction movement is to Libya.

Domestic employment in construction has grown substantially since 1973, but its growth has occurred by adding workers not previously employed in construction. These workers, in turn, have had to acquire the higher level skills lost through transfers. The overall effects upon Egypt are understated by simply comparing the number of workers who have migrated with the total labor force in the construction sector. That labor force includes unskilled workers, who are easy to replace, as well as skilled workers, who are not. There is a higher proportion of skilled workers among those seeking employment in other Arab countries than in the labor force in construction. Construction is drawing from other sectors, es-

sentially "replacing" those who are temporarily lost to Egypt through external employment.

3.   The Effects on the Economy

The effect of the large scale migration of Egyptian construction workers has been to shift the supply of this type of labor in the domestic economy. The number of workers in the construction sector has actually increased in absolute numbers in spite of the emigration. That increase has been accomplished due to a dramatic growth in wages. Thus, the international demand for construction labor in the Middle East has increased the real costs of construction in Egypt and, correspondingly, the real incomes of construction labor.

The higher wages in construction have induced the transfer of employed labor from other sectors of the economy as well as pulling into the construction sector labor which was formerly unemployed or underemployed. Labor attracted into the construction sector to replace the emigrants who were formerly productive created some reduction in real output in other sectors. This may have been offset by increases in the use of other types of factors. However, there has been a real cost to that adjustment also.

The transmission of the effects of the emigration of construction workers to the remainder of the Egyptian economy is reduced by the imperfect interconnections which exist among labor markets as well as the extensive controls over prices in goods markets. For example, employment in public enterprise and conventional government remains highly attractive to labor because it provides a high degree of job security.

Construction workers migrate for short periods. This reinforces the development of skills. Returnees have new skills, as well as new financial resources and new patterns of consumption. There has been a redistribution of income towards workers in the construction sector, in part due to the emigration phenomenon. This is part of the international equalization of wages in construction which is brought about by the migration. But that process does not spread equalization uniformly through the economy as a whole.

The higher costs of construction mean that the real value of investment fixed in nominal terms has decreased. This reflects the opportunity costs of consumption which have been lost in the shift of the labor force. The higher costs of investments are an important social cost in an economy placing heavy stress on accelerating its economic growth, in large part through increasing the rate of investment.

There may also be some social costs due to the loss of labor whose training costs have been borne publicly. However, training costs may, to a considerable extent, have been borne by the workers themselves.

In addition to the large private gains to the emigrating labor, as well as to the domestic labor which has replaced it in the construction sector, there are some public benefits as well. These are primarily in the remittances than can be transferred at exchange rates which do not represent the real scarcity value of foreign exchange.

4. <u>Policy Issues</u>

The development processes of the Arab countries are interrelated

through their common use of the Egyptian labor force pool. This inter-
relationship is particularly significant with respect to the achievement
of investment targets given the large proportion of construction output
in those targets and the critical role of skilled labor construction out-
put. In effect, there is a competition for skilled construction labor
in the Middle East. But the competition impinges most heavily on Egypt,
as indicated by the estimates of construction labor migration.

The existence of the interrelationships among development programs
of Arab countries suggests that there may be some opportunities for overall
improvement in performance by coordination of the programs. Yet detection
of such overall improvement would require a means of balancing the rela-
tive changes in different countries. From this viewpoint of particular
countries, particularly the oil-exporting and labor-importing countries,
any change which restricted the availability of construction labor would
make them worse off as compared to the present situation in which there are
no constraints. The tasks of Egyptian policymaking with respect to the
flow of construction worker emigrants are to maintain and, if possible,
increase the capture for the entire economy of the benefits of earnings
abroad and to facilitate the domestic adjustment to emigration.

A substantial part of remittances are repatriated under the system
of "own exchange" imports, which removes the goods imports from any licensing
restrictions. This system includes a relatively high proportion of consumer
goods. Given the social goals within Egypt of accelerating the rate of
growth and, therefore, the rate of investment, it would be preferable if
more of the foreign exchange generated by remittances were available for

the purchase of investment goods. In order to achieve such a redirection, it would be necessary to make it more attractive for the earners of remittances to sell their foreign exchange to the Egyptian banking authorities.

To increase the total of earnings abroad by construction workers, consideration might be given to learning from the successes of the Arab contractors in recruitment and in training. In the Arab oil-exporting countries, the competition for construction contracts appears to have increased. Clearly, more Egyptian workers are used by non-Egyptian contractors than by Egyptian contractors. However, there might be some cost advantages to integrating the recruitment of labor and its employment in the other Arab countries by Egyptian contractors and, thus, providing a competitive edge for the use of Egyptian labor. Some labor importing countries in the region are reacting to the higher wages of Arab workers by facilitating the immigration of Indians and Pakistanis, who are cheaper and are delivered by the contractors.

To facilitate domestic adjustment to emigration, consideration should be given to creating organizational devices for diverting labor to construction which is now underutilized in its present occupation. According to general belief, this latter labor is, to a large extent, in the public sectors of both administrative government and public enterprise. Two alternative means of channeling underemployed labor in the government sectors into construction activities might be considered. First of all, the new public construction firms could be formed, recuiting workers from other public sector activities. Alternatively, existing public enterprises could form their own construction units for their new projects,

recruiting workers from other internal activities for this purpose. Both alternatives require careful examination before feasibility can be established and, in that case, before operational methods can be developed.

In addition, further assessments should be undertaken of the means of facilitating the training of construction workers. Previous experience with the training institutes in this sector has not been successful. The enrollment and outputs of these institutes have been too small to affect the overall supply of skilled construction labor. Nonetheless, the number of construction workers has been increasing and, presumably, the necessary skills are being generated. It would, therefore, be desirable to improve the understanding of the training process in the construction sector in order to determine if there are points at which government intervention through subsidies or by the creation of dispersed training facilities could facilitate the process.

The adjustment within Egypt to the loss through emigration of a large proportion of the construction labor force which, in turn, is such a critical part of the entire labor supply, has been remarkable. It is quite possible that the most difficult of the problems are now behind Egypt. The problems may now be more manageable than would have appeared several years ago. This means that a new assessment of the difficulties which confront Egyptian economic growth in the future is required. The old problems are no longer as critical as they used to be. New problems have to be resolved.

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INTRODUCTION

The migration of Egyptian construction workers to other Arab countries
is part of the recent massive flow of Egyptian workers of all types, from
professional to unskilled, to other Arab countries. While Egyptian migra-
tion on a small scale has a long history, it accelerated rapidly after the
oil price increases of 1973 which generated large new surpluses of revenues
to the Arab oil-producing nations and thus created the basis for the subse-
quent rapid expansion of their investment programs. The migration has impor-
tant political and economic implications for Egypt and the Middle East gene-
rally, as well as effects on specific economic sectors of each country in
the region.[1] The general effects can be appreciated most thoroughly through
a sectoral study and the construction sector is a particularly crucial one
at this time, both in Egypt and in the countries to which Egyptian construc-
tion workers are migrating.

1. Construction Activity and Development

Construction is recognized as having a critical role in developing
countries. This role is reflected in the many stories of growth bottlenecks
created by inadequate capacity in this sector and can be deduced on an a
priori basis from critical features of the industry: its necessity as part
of investment and the difficulties of expanding its capacity. The generally

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[1]For a survey of the implications of this migration see Nazli Choucri,
Migration Processes Among Developing Countries: The Middle East (M.I.T.:
Center for International Studies, May 1978).

crucial characteristics of construction in the development process are re-
inforced in Egypt by two special conditions. One is the imperative need
for reconstruction and rehabilitation of much of the country's housing infra-
structure. The other is the intimate association of construction activity
in Egypt with such activity in other Arab countries which has been created
by the large scale migration of Egyptian construction labor in search of
employment.

This paper focuses on the significance of the migration and employment
of the labor force in the construction sector, yet it will be useful to have
in mind other conditions which make construction activity and employment
of particular salience in development. Although new capital formation is
not a sufficient condition for development, it is a necessary condition and
no country has succeeded or can be expected to succeed in transforming it-
self without a substantial rate of investment. In turn, a major part of
investment is carried out by the construction sector. The proportion of
construction in total investment varies, of course, according to the sector
in which the investment takes place. Taking into account investment in the
construction sector itself, in some cases the ratio of construction to total
capital requirements may be as low as 25 to 30 percent. But more commonly
this proportion is at least 40 to 45 percent and not uncommonly will be 60
percent. Capital formation in housing and commercial office and warehouse
construction is overwhelmingly carried out by the construction sector.[2]

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[2]In the 1960's in Egypt, the proportion of building construction in total
fixed investment ranged from 42.2% in 1960/61 to a high of 50.8% in 1963/64
and averaged 48.3% over the entire decade.

In addition to the magnitude of the relative contribution of the construction sector to investment, the timing and "essentiality" of that contribution also gives it a notable significance. There have been few, if any, studies of the possible trade-offs in the use of labor or equipment in place of construction plant and facilities, yet general observation suggests that there is not a high degree of substitutability. More labor or equipment, for example, will usually require more rather than less sophisticated roadbed construction. While such casual empiricism is, at best, inconclusive, in every sector there appear to be minimum construction requirements for investment, without which equipment cannot be used.

The timeliness of the completion of construction activity is also of critical importance in the investment process. For projects involving structures, it is generally the case that no part of a new investment project can be used until most of the construction has been completed. In some cases the equipment cannot even be moved into place until nearly all the construction has been completed. This condition makes the timing of construction activity crucial to the projects at hand. The evidence in this respect is again limited, but it suggests that the construction component of investment has a longer gestation period than building of equipment. The gestation periods of construction will often be three years or more, while for equipment manufacture, the time periods required usually appear to be two years or less. There may, of course, be some trade-offs between overall project costs and the length of time required for completion. There is also a folklore of stories of projects being done on a "crash" basis with consequent increases in costs, but little folklore about the possibility of

reducing costs by stretching out the gestation period. And there are vir-
tually no quantitative data to provide substance for the folklore which does
exist. Yet general engineering knowledge suggests that scheduling of in-
vestment activity must take into account the relatively long and apparently
rather inflexible lead times necessary for the completion of construction
activity.

Moreover, the output of the construction sector is, in the parlance
of the international trade economist, a "non-traded good", in that it cannot
be readily transported, and must be produced on the spot. There are some
exceptions: prefabricated housing and mobile homes and prefabricated struc-
tural members. Yet these hardly affect the accuracy of the general charac-
terization of the industry. This should not be confused with the real pos-
sibility of the use of imported labor and other resources to perform con-
struction tasks. But there is an important difference between the movement
of labor and other productive resources, on the one hand, and trade in goods
and services, on the other. This paper focuses largely on the first of these
considerations.

The relative magnitude of the construction component in investment,
the inflexibility of substitution for it by other inputs, its long gesta-
tion period, and the on-the-spot production conditions make the sector a
special focus of concern in all developing countries. Its capacity sets
a physical limit to the acceleration of growth, for overall investment can-
not grow faster than this sector's output and the product desired cannot
be imported. Moreover, since its timing is relatively inflexible, the amount
of real output growth which can be achieved in any year when the economy

is working close to its overall capacity will depend on the amount of construction activity accomplished one, two, three or more years in the past.

Construction in Egypt, as in all developing countries, it one of the more labor-intensive sectors of the economy. The range of efficient technical choices in the sector is wide and, thus, its capacity to absorb labor and hence to provide employment opportunities is high. In terms of relative value added, labor input is the most important input in construction activity. In addition, the labor used has important components with relatively high skills, so, at any time, its availability may be the most important constraint on the output capacity of the construction sector. It is clear, then, that the emigration of construction labor and its effects in determining the capacity of the construction sector can be significant.

The commitment of unskilled labor to the construction sector is often quite transitory. In Egypt, labor usually passes through the construction sector before moving into industry. Hence, construction plays the role of a training ground for labor. This is contrary to the characteristic assumption of models of growth in dual economies, that labor moves directly from agriculture into industry.

The construction sector also has important intersectoral relations with supplying sectors. The expansion of construction creates demands for the output of a number of basic industries that produce the components of buildings and construction, iron, cement, iron bars, bricks, glass, wood products, etc. Thus capacity and investment in those industries, in turn, depends in large part on the level and rate of increase of the output of the construction sector.

2.   Migration in the Middle East,

As noted above, the migration of construction workers constitutes an important aspect of the overall migration of Egyptians to other Arab countries. The issues raised by migration in the Middle East have not yet received the attention they deserve from political analysts, economists, and area specialists. Yet it is not possible to overlook a phenomenon that has achieved a major role in the economy of Egypt as well as those of other countries in the region. The nature, composition, and extent of that migration must be appreciated in order to understand the role of construction workers in a web of interchanges that will shape the politics and economics of the region for decades to come. A brief characterization of migration patterns in the Middle East may serve as an introduction to an analysis of employment and migration in the construction industry and place these workers in the general context of the political economy of the area. Among the most distinctive characteristics of the recent migration patterns in the region as a whole are the following:[3]

First, it is a pattern of flow among developing countries; labor remains largely within the region, rather than migrating externally.

Second, it is composed of both skilled and unskilled labor; the entire skill and occupational structure of the labor force is involved in, and in turn is affected by, this movement.

Third, it is not permanent in nature, but temporary, generally from one to four years.

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[3]Choucri, Migration Processes Among Developing Countries, 1978.

Fourth, it is generated and maintained by underlying economic and political forces that create the incentives for movement and the regulations for sustaining the flows.

Fifth, the supply and demand for labor place pressures on respective national governments for policy responses for regulating and facilitating the movement of labor across national boundaries.

Together, these five features of migration in the Middle East generate a pattern of flows that is distinctive to the types of economies in the region and provide the context within which construction workers go from one country to another. Cultural similarities between Egypt and the neighboring countries contribute to these flows, but critical changes in the economies of the Arab countries and their political relations have created and reinforced an intricate pattern of movement where workers in the construction industry are among the most visiblé.

The migration of Egyptian workers to other Arab countries constitutes the major, if not the most distinctive, type of movement. In this context, it must be recalled that traditionally the countries of the Middle East have comprised four types of migratory situations:[4]

1. Countries like Egypt and, to a lesser extent, Jordan, that have exported largely skilled or professional labor.

2. Countries like Kuwait, Saudi Arabia, and other oil-rich states that have imported a large or critical portion of their labor force from other countries in the region.

[4]Nazli Choucri, "The Migration in the Middle East: A Problem for Whom?" International Migration Review. Vol. 11, No. 4 (Winter 1977), pp. 421-443.

3. Countries like Algeria and Turkey that have historically encour-
   aged the migration of workers to Europe, most notable to Germany,
   France, and Italy.

4. Countries like Tunisia, Syria, and, to a lesser extent, Morocco
   and Iraq that historically have tended to be more "self-sufficient"
   in their labor requirement.

This traditional fourfold pattern has been undergoing major changes
in recent years. Egypt is no longer supplying only skilled labor to other
Arab countries. Since the war of 1973 in the Mideast and the increases in
petroleum prices in 1973-74, the expanding investments in the domestic eco-
nomies of the oil rich countries have demanded larger inflows of manpower.
The development of closer political relations among Egypt and other Arab
states has contributed further to this flow. The "open door" policy in
Egypt, which has expanded Egyptian relations with the rest of the world
and especially the oil exporting countries, has been a new source of faci-
litation for the outflow of workers. Thus, the economic "boom" in the Gulf
region and in Libya, in conjunction with greater freedom of movement out
of Egypt, has created a new pattern of movement. Even Jordan, for other
reasons, is now importing Egyptian labor.

The emigration of construction workers reflects the changes in overall
migration patterns. These workers comprise, in themselves, a wide range
of skills. At one end of the spectrum are the engineers, contractors, and
other technicians, and on the other are the sand and brick carriers, and
other unskilled workers. The evidence, so far, strongly suggests that there
are major transformations in the patterns of employment for both skilled

and less skilled workers. Furthermore, as in many developing countries, there is a large informal construction sector in conjunction with the organized sector. The characteristics of the organized sector are well documented. But the features of the informal sector must, invariably, be inferred indirectly from different characteristics of the labor force.

Among the most distinctive features of the migration of construction workers is its short term nature. That feature has important implications both for the meeting of labor requirements within the country and for developing a coherent set of policies to regulate the movement of labor across national boundaries. The return movement is regular and frequent and the returnees may well be the repositories of new skills, as well as new financial resources and new patterns of consumption. These may, in turn, have an impact on the social and economic habits of the country.

Yet the uniqueness of the migration of construction workers should not be overstressed. Other countries in the Middle East have "sent" labor to work in foreign countries. The policies developed by Turkey and Algeria, for example, may well be instructive for Egypt. But there are significant differences between the Egyptian case and that of the other two countries. Egyptian workers are moving into economies that are less developed than Egypt, where the level of industrialization is lower and where it is the Egyptians that represent the most skilled and sophisticated of the workers. This distinction is of sufficient importance to caution against reliance on uncritical analogies with Turkey or Algeria for the formation of migration policies in the Egyptian context.

3. <u>Sequence of Analysis</u>

This paper attempts to investigate the phenomena of construction labor migration and its social and economic consequences on the Egyptian economy. Part I describes, briefly, general employment patterns in Egypt and, in greater detail, employment in the construction sector. It then examines recent trends in migration to other Arab countries and, specifically, the migration of construction workers. Part II examines the extent to which migration of construction labor is a constraint for construction in Egypt and identifies some policy implications for the country's overall development.

The contribution of Part I lies largely in the attempt to present some consistent numbers on the basis of which further analyses can be undertaken. This is not an easy task. For scholars familiar with data on developing countries, the challenge of devising consistent estimates should not be underestimated. The contribution of Part II lies in the extent to which the analysis is able to capture the effects of construction labor migration on the Egyptian economy and political system. The view of Egypt as a labor surplus country, with attendant problems and policy implications, cannot readily be sustained given the evidence of increasing "pull" of labor for employment outside the country's national borders.

PART I

EMPLOYMENT PATTERNS AND MIGRATION

1.   Overview: General Patterns of Employment

To appreciate fully the characteristics of the labor force in the con-
struction industry in Egypt, it is important to bear in mind some of the
distinctive features of the country's overall population and of its labor
force.

Egypt is one of the most populated countries of the Middle East, and
at about the median with respect to rate of population growth. The census
of 1976 placed the country's population at 38 million and the rate of growth
during the past ten years at 2.31%. It appears that a little over 25% of
the total population can be regarded as comprising the "labor" force, a
figure that has remained relatively stable over time. Table I-1 presents
population, labor force, total employment, and the participation rate (the
ratio of labor force to total population) in an historical context for selected
years.

Government statistics conventionally disaggregate the total work force
in terms of four categories:

- manpower, which refers, alternatively, to all individuals between

12 and 65 who are able to work or to all individuals over 6 years

of age, physically able to work;[1]

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[1]The first definition is used in the Labor Force Sample Surveys, Central
Agency for Mobilization, Population, and Statistics (CAPMAS); the second
is used in the population censuses.

Table I-1

Participation Rates; Alternative Estimates
Using Labor Force and Total Employment as a Percentage of Population

Year	Population (1)	Labor Force (2)	% (2/1)	Total Employment (3)	% (3/1)
1937	15,933	5,838	36.6	5,806	36.4
1947	19,022	6,995	36.8	6,641	34.9
1959	24,372	6,486	26.6		
1960	26,085	6,891	26.4	6,006	23.0
1961	25,125	6,589	26.2	6,492	25.8
1962	25,300	6,389	25.3	6,657	26.3
1966	30,076	7,635	25.4	7,480	24.9
1968	30,372	8,534	28.1	7,893	26.0
1969	31,996	8,773	27.4	8,132	25.4
1970	32,816	8,655	26.4	8,361	25.5
1971	33,569	9,055	27.0	8,458	25.2
1972	34,323	9,471	27.6	8,672	25.3
1973	35,092	9,267	26.4	8,860	25.2
1974	35,879	9,678	27.0	9,038	25.2
1976	38,228	10,648	27.9	9,628	25.2
1980	41,700	11,868	28.5		

Sources on the following page.

Sources:

Total Employment: 1937 and 1947 from the 1937 and 1947 censuses
1960-1976 from the Ministry of Planning Followup Report

Labor Force: 1937 and 1947 from the 1937 and 1947 censuses
1959, 1960, and 1962 from the Labor Force Sample Surveys,
  May rounds, Central Agency for Population, Mobilization
  and Statistics (CAPMAS)
1961 from the Labor Force Sample Survey, April round
1966 from the 1966 census
1968-1974 from the Labor Force Sample Surveys (CAPMAS),
  May rounds
1976 data from the 1976 census
1980 data from the Ministry of Labor

Population: 1937 and 1947 from the 1937 and 1947 censuses
1959, 1961, and 1962 data from the Labor Force Sample
  Surveys (CAPMAS), May rounds
1960 from 1960 census
1966 from 1966 census
1968-1974 from the Labor Force Sample Surveys (CAPMAS),
  May rounds
1976 from the 1976 census
1980 from the Ministry of Labor

- <u>economically active</u> population, which refers to those over 6 years of age, employed or unemployed;[2]

- <u>labor force</u>, including all those between the ages of 12 and 65, employed or unemployed, which is about 25% of the population;[3]

- <u>total employment</u>, which includes all who are employed.

While these general distinctions provide some guidelines regarding definitions used, there are inconsistencies which may confound any ready understanding of the nature of employment patterns in the country.

1.1 Employment Structure

An historical overview of overall patterns of employment by sector of economic activity is presented in Table I-2. It is clear that for the country as a whole, employment in agriculture predominates, although it is declining over time. In 1968, 53% of the labor force was in agriculture, but by 1974, the most recent date for which there are reliable figures, that percentage had declined to 46.3%. The declining share of employment in agriculture indicates that the labor force is being absorbed into other sectors.

The next largest source of employment is the service sector, which employs about 16-17% of the labor force. That figure has ranged between 15.6% and 17.8% between 1964 and 1974. However, there are such uncertainties in the data that it is possible that the service sector may have

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[2]This definition is used in the population censuses.

[3]Labor force, as used in the Labor Force Sample Surveys, roughly corresponds to economically active population as used in the population censuses.

Table I-2

Distribution of Labor Force by Activity

	37	47	58	60	66	68	69	70	71	72	73	74	75	76	80
Agriculture	68.9	58.4	54.4	53.5	52.0	52.9	51.1	50.0	53.2	52.8	50.5	46.3	50.3	50.3	48.0
Mining & Quarrying	0.2	0.2	0.5	0.3	0.2	0.1	0.3	0.4	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Manufacturing	6.0	8.0	8.3	9.7	13.4	14.1	13.9	15.0	12.3	12.6	13.9	14.9	13.8	13.8	14.8
Construction[1]	2.1	1.6	2.3	2.3	2.7	2.4	2.2	2.5	2.3	2.3	2.8	2.6	2.8	2.8	3.3
Electricity, Gas & Water	0.4	0.3	0.6	0.5	0.7	0.6	0.5	0.7	0.3	0.4	0.5	0.4	0.5	0.5	0.7
Commerce	7.5	8.4	10.7	8.9	7.7	8.9	8.9	8.8	9.6	9.6	9.6	11.4	9.5	9.5	9.6
Transportation & Communication	2.4	2.9	3.9	3.7	4.4	3.7	4.1	4.5	3.9	3.9	4.1	4.4	4.2	4.2	4.2
Services	12.0	15.0	19.5	18.1	15.6	16.3	17.8	16.3	16.1	16.0	16.6	17.0	16.8	16.8	17.5
Not Defined	0.6	5.1	7.0	3.0	3.2	1.0	1.0	2.0	2.2	2.1	1.9	2.8	1.9	1.9	1.9
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

[1]This is based on the lowest estimates of employment in construction. See Table I-8 for alternative estimates. The Ministry of Planning, Follow-up Report, 1977 estimates employment in construction at considerably higher levels. See below.

Sources on next page.

Sources:

       1937 -- Population Census 1937
       1947 -- Population Census 1947
       1958 -- Labor Force Sample Survey, CAPMAS
       1960 -- Population Census 1960
       1966 -- Population Census 1966
       1968-1974 -- Labor Force Sample Surveys, CAPMAS
       1975, 1976, 1980 -- Ministry of Labor

attracted a higher percentage of the labor force in the early 1960's. Traditionally, this has always been a large sector.

The manufacturing (industry) sector is the third source of employment for the country as a whole, drawing 14.9% of the labor force in 1974. Patterns of employment in manufacturing industries have been rather erratic, with a notable decline in 1971 and a gradual recovery during the subsequent years.

The trade (commerce) sector exhibits an increase in its share of the labor force. It attracts only a relatively small share of the country's total employment, about 11.4% of the labor force at the peak year of 1974, yet this figure represents an increase of 3.7% over the past eight years.

The years 1960-66 showed the highest increase in industrial employment during the whole period under study. Employment in industry increased from 671,000 in 1960 to 1,026,000 in 1966,[4] which represented a 53% increase in industrial employment at an annual rate of 7%.[5] This was the period of the first five-year plan when investment in industry reached its highest level.

Between 1966 and 1972, there was a slackening in the rate of growth in industrial employment, for it increased by only 8.5% during the entire 6-year period. This was the period following the June 1967 War where the patterns of resource use changed completely, giving first priority to defense at the expense of other uses of resources. These were also the years

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[4]See Table 1, Statistical Appendix.

[5]The compound rate of growth is utilized throughout: $r = \dfrac{\ln\frac{b}{a}}{t}$, where a is the number at the beginning of the time period, b is the number at the end of the time period, and t is the difference in years of the two numbers.

of particularly intense foreign exchange shortages. Investment in industry declined sharply; the average rate of output growth was 2.5%, but was negative in certain years. Partly as a result of the foreign exchange shortages, excess capacity increased in industry, reaching 50% in certain industries.[6] Investment carried out during this period was mainly for replacement and renewal. New projects accounted for only 10% of new investment. It was only after 1973 that investment in industry and employment started to increase. Employment in industry in 1974 showed a 32% increase from 1966.[7]

By contrast, construction did not show any important change between 1937 and 1974 as far as its share in the labor force is concerned. That share increased from 2.1% to 2.6% of the total during the period.[8] The latter percentage is roughly comparable to figures for other developing countries, and does not represent a substantial departure from what could be expected under the circumstances unique to Egypt. The absolute level of employment showed a tremendous increase during the same period, increasing by about 93%, or at an annual rate of increase of 1.8%.[9] The largest increase in employment in construction occurred during the period 1960-1966, where it increased from 155,126 to 203,517, or by 31% with an annual rate of increase of 4.5%.[10] Since expansion in construction activities is a

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[6]For excess capacity, See M.A. Mongi and M.N. Hanafi, "Labour Absorption in the Egyptian Economy", Institute of National Planning, Cairo, 1973, pp. 91-92.

[7]See Table 1, Statistical Appendix.

[8]Again, note the differences if one uses other estimates of construction employment as shown on Table I-8. Using the alternate construction employment figures, the percentage increase is from 2.1% in 1937 to 3.5% in 1974.

[9]See Table 1, Statistical Appendix.

[10]See Table 1, Statistical Appendix.

function of the level of investment in the economy as a whole and in construction in particular, it is not surprising that this was also a period with high levels of investment in all sectors of the economy throughout the period under study.[11]

In concluding these general observations on general trends in labor force, it is important to note some major changes in patterns of economic activity in terms of numbers employed in each sector. Between 1968-74, total employment in Egypt grew by an additional 923,000, according to one source.[12] The trade sector absorbed the largest amount of the net increase, namely 35%. Services and manufacturing ranked second and third respectively, at 29% and 26% each, while transportation absorbed about 11% of the changes in employment, and the construction sector captured 5% of this manpower increase. These percentages are not overall increases in employment in each sector -- in that latter case the figures are much higher -- but they represent a breakdown in the distribution of the activities of individuals that were added to the labor force.

The overall increases in each sector follow a roughly similar distribution, but the percentage increases in construction -- 22% during this period -- are considerably greater than are represented by the 5% added to that labor force. Thus, while the total numbers involved in construction activities are formally recorded as low relative to many other sectors, the increases have been extensive. We shall examine why and how that has been the case, and the effects and implications for the country's economy and overall society.

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[11]See Table 9, Statistical Appendix.
[12]Labor Force Sample Surveys, May rounds, CAPMAS, 1968-74.

1.2 <u>Occupational Structure</u>

The patterns of occupations structure and their shifts over time are important indicators of economic development. If economic development proceeds on a large scale implying important technological changes, the occupational structure should also undergo changes. Table I-3 reviews the historical trend in occupational structure. Since Egypt is an advanced country relative to the other Arab countries in the region, it is useful to note where appropriate comparison with the industrial countries of the West can be made which will indicate the significance of its occupational structure.

In 1974, the proportion of workers in white collar occupations amounted to 20.8% of the labor force compared to over 40% in industrial countries (the U.S. has 44%). The share of professional, technical, and scientific workers amount to 5.7% of the total labor force compared to the 13-17% characteristic of more developed nations.[13] This ratio reflects the availability of high technical skill in an economy. However, in Egypt this group has undergone extensive changes throughout the period under study. It increased by 257% between 1937 and 1974 at an annual rate of 3.44%. Its share of the labor force also increased during the period under study from 2.5% to 5.7%. This reflects development on both the demand and supply side of these skills.[14] On the demand side, the industrialization of the economy and corresponding changes have raised the demand for those types of skills; on the supply side, the educational system has responded to the increasing

[13]For comparisons with developed nations, see Yearbook of Labour Statistics 1972, Geneva, 1975, Table 3. For Israel, see C.B.S., "Statistical Abstract", 1970.

[14]The absolute level of increase of this group was over 141% between 1960 and 1974. Between 1966 and 1972 the increase was 42%. See Table 2 in the Statistical Appendix. There are notable problems with these data, which make their reliability suspect.

Table I-3

Occupational Structure, 1937-1974
(percent of total employment)

Occupation	Year						
	1937	1947	1960	1966	1970	1972	1974
Professional, technical & scientific	2.5	2.7	3.7	4.4	4.8	5.5	5.7
Administrative, executive & managerial workers	0.7	0.9	1.1	1.6	1.2	1.5	1.0
Clerical workers	1.8	2.0	3.7	5.0	5.4	5.1	5.6
Sales workers	6.7	6.8	8.1	5.8	6.6	6.9	8.5
Transport workers	2.3	2.4	3.1	3.0			
Craftsmen, production & processing & related workers	9.9	13.3	16.2	16.5	21.0	18.4	22.0
Farmers & related workers	68.6	60.5	53.1	45.6	48.5	51.6	45.5
Service workers	7.2	9.0	8.9	6.9	9.9	9.3	9.1
Not Classified	0.3	2.5	2.2	11.2	2.3	2.7	2.6
TOTAL	100	100	100	100	100	100	100
White Collar	11.7	12.4	16.6	16.8	18.0	19.0	20.8
Blue Collar	12.2	15.7	19.5	19.5	21.0	18.4	22.0

Source: Table 2, Statistical Appendix.

demand.

The share of administrative and managerial occupations in the labor force is still low when compared to other developed countries. In 1974, the share was 1.0% while the ratio in advanced countries ranges between 14-20%. There may well be some understatement in the Egyptian data due to classification differences.

The proportion of blue collar workers was around 22% in 1974, nearly half the level prevailing in advanced countries. However, this labor group has undergone great changes since 1937, from 12% of total employment to 22% of total employment in 1974. This trend is consistent with the·growth of industry during this period and its increasing share in GNP.

The share of service workers in 1974 (9%) is relatively high and does not differ much from the level revealed in advanced countries (10-15%).

The occupation with the largest share of workers is still that of farmers and related workers -- 45.5% in 1974, which reflects the dominant sector and activity in the economy. However, this group showed a large relative decline compared with the beginning of the period, for it was nearly 70% in 1937. This is consistent with previous observations with respect to the structural changes that have taken place in the economy during this period. Indeed, the share is still high when compared with the 6-10% in advanced economies.

1.3 The Employment Matrix

The distribution of different occupations among different activities and industries is available for 1960 and 1966 censuses, and from the sample

survey for 1974. To indicate changes, we compare the 1960 and 1974 figures. In Table I-4 the first line and second line for each occupational category indicate the percentage of each profession in the different sectors of the economy in 1960 and 1974 respectively. Table I-5 similarly displays the percentage each occupation or profession contributes to each sector's employment. Table I-5 can be looked upon as an indicator of the skill levels of employment in each activity and is complementary to the previous table.

Thus, while agriculture utilizes 3% of the professional and technical occupations, they represent 0.4% of the total employment in agriculture for 1974. The corresponding figures for 1960 are 1.3% as to opposed to 0.1%. Industry includes 9.3% of professional and technical occupations and 9.5% of administrative and managerial occupations in 1974, yet they represent 3.6% and 0.6% of total employment in industry for that year. The occupational structure of employment in industry underwent some obvious changes between 1960 and 1974. The share of professional, technical, and white-collar occupations increased, while the share of blue-collar occupations declined, showing an increase in the skill structure of the labor force in industry.

Row 1 of Table I-4 indicates that the highest percentage of professional and technical occupations are in the service sector -- 87% in 1960 and 73.5% in 1974. This sector includes government and personal services including universities, higher institutes, public and private health, and so forth. The only other significant change between 1960 and 1974 is the increase in the percentage going to both agriculture and industry. The proportion of professional and technical workers in agriculture increased from 1.3% to 3.0%,

Table I-4

Distribution of Activities for Each Occupation: 1960 and 1974[*]
(in percentages)

Occupation \ Activity	Agriculture	Mining & Quarrying	Manufacturing	Construction	Electricity Gas & Water	Commerce	Transport	Services	Finance & Insurance	Not Classified	Total
Professional Technical	1.3	.4	3.9	1.2	.6	2.2	2.2	87.0	---	1.3	100
	3.0	.3	9.3	1.9	1.7	3.0	2.9	73.5	4.0	.2	100
Admin. & Managers	.3	.3	11.0	8.8	.4	9.8	6.5	61.6	---	1.2	100
	3.1	1.1	9.5	16.0	.5	3.8	5.1	56.7	3.9	.1	100
Clerical Workers	2.9	.4	10.6	1.3	1.3	14.2	8.2	57.3		4.1	100
	6.0	.4	16.0	2.9	1.7	6.3	15.4	41.8	8.6	.8	100
Salesmen	.2	---	.9	.1	---	96.0	.1	1.2		3.3	100
	.2	---	1.5	.1	.1	97.4	.1	.2	.2	---	100
Farmers & Fisherman	99.0	---	---	---	---	.1	---	.4		.4	100
	98.9	---	.2	---	---	.3	---	.3	---	.1	100
Miners[**]	.1	93.3	1.8	1.0	.1	.3	.1	2.0		1.5	100
Transport Workers[**]	2.3	.3	2.9	.5	.1	2.4	69.3	18.9		2.4	100
Craftsmen & Production Workers	.9	.5	54.5	12.7	2.5	1.3	5.9	18.7		3.1	100
	1.8	.7	57.0	9.1	.8	4.0	13.2	12.5	.2	.6	100
Service Workers	2.6	.1	1.9	.2	.2	1.3	1.8	90.4		1.5	100
	3.1	.2	6.6	1.1	.6	16.2	3.9	66.2	1.2	.9	100
Not Classified	1.7	.1	1.7	.2	.2	.5	1.1	13.7		80.6	100
	2.2	---	1.0	.2	.1	.5	.3	.9	.1	94.6	100
TOTAL	53.5	.3	9.7	2.2	.5	8.9	3.7	18.1		3.0	100
	46.3	.2	14.9	2.6	.4	11.4	4.4	16.1	.9	2.8	100

Sources: 1960 -- 1960 Census
1974 -- Labor Force Sample Survey, May Round, 1974

* The first datum in each entry is for 1960; the second is for 1974.

** Miners and Transport Workers are included in Craftsmen and Production Workers for 1974.

Table I-5

Distribution of Occupations for Each Activity: 1960 and 1974[*]

(in percentages)

Occupation / Activity	Professional & Technical	Administration & Managers	Clerical Workers	Salesmen	Farmers & Fishermen	Miners[**]	Transport Workers[**]	Craftsmen & Production Workers	Service Workers	Not Classified	Total
Agriculture	.1	---	.2	---	98.8	---	.1	.3	.5	.1	100
	.4	.1	.7	---	97.2			.9	.6	.1	100
Mining & Quarrying	4.0	1.1	4.7	.3	.2	54.0	3.3	27.4	4.2	.7	100
	8.9	4.9	9.4	1.5	---			68.3	6.4	.5	100
Manufacturing	1.2	1.2	3.9	.7	.2	---	.9	89.6	1.8	.4	100
	3.6	.6	6.0	.8	.6			84.1	4.0	.2	100
Construction	1.7	4.2	.1	.4	.1	.1	.7	90.0	1.0	.3	100
	4.4	6.3	6.4	.3	.2			78.2	4.0	.2	100
Electricity Gas & Water	3.3	.9	9.2	---	1.3	---	.4	76.4	3.8	4.5	100
	22.3	1.2	21.8	2.2	.5			38.9	12.6	.5	100
Commerce	.8	1.2	5.8	87.3	.4	---	.8	2.3	1.3	.1	100
	1.5	.3	3.1	72.7	1.4			7.8	13.0	.1	100
Transport	1.8	1.9	8.1	.2	.2	---	57.2	25.4	4.5	.8	100
	3.8	1.2	19.7	.3	.1			66.6	8.1	.2	100
Services	15.0	3.7	11.8	.5	1.3	---	3.2	16.5	46.6	1.9	100
	26.2	3.5	14.5	.1	.9			17.1	37.4	.1	100
Finance & Insurance	24.3	4.2	58.2	2.1	2.6			4.1	11.3	.2	100
Not Classified	1.4	.2	5.0	3.9	7.4	.1	3.1	16.7	4.6	57.6	100
	.5	---	1.7	.2	2.0			4.8	2.9	87.8	100
TOTAL	3.1	1.1	3.6	8.1	53.4	.2	3.0	16.0	7.3	2.1	100
	5.7	1.0	5.6	8.5	45.5			22.0	9.1	2.6	100

[*]The first datum in each entry is for 1960; the second is for 1974.

[**]Miners and Transport Workers are included in Craftsmen and Production Workers for 1974.

while the increase for industry was from 3.9% to 9.3% from 1960 to 1974. This reflects a change in both technology and organization in these sectors which increases the demand for such professions and increases the supply of those types of professionals capable of meeting that demand.

The second row reflects changes in the distribution of the administrative and managerial occupations. A decline occurred in the proportions in the service sector -- from 61.6% in 1960 to 56.7% in 1974. A decline also occurred in the percentage employed in manufacturing and in transport. This change reflects a shift from small scale to large scale organizations, and an increase in the role of the public sector in sectors other than transport and manufacturing, such as agriculture and electricity, gas and water.

The proportions of other occupations in the various sectors show a few major changes between these two dates, but they do not show any unusual pattern of behavior. Thus, the largest share of production workers are industrial, the majority of salesmen are in commerce, and most of the unclassified workers are found in services, but in almost all cases occupations have become more diversified among activities.

Row 1 of Table I-5 indicates both a continuation of certain features and vital changes in others between 1960 and 1974. While most workers in agriculture are still farmers, there is a change in the input of other occupations in that sector. The professional, technical, and managerial occupations increased from .1% in 1960 to .4% in 1974. Similar changes have occurred in the use of clerical occupations and service workers in agriculture. The inputs increased from .2% to .7% in the case of clerical workers and from .5% to .6% in the case of service workers. The trends reflect

both a change in technology and in organization as indicated by the increase in agricultural cooperatives.

The construction sector is indicated in row 4 of Table I-5. It shows strong increases between 1960 and 1974 with respect to the proportions of the various occupations. In 1974 technical and managerial occupations represented 10.7% of total employment in construction as opposed to 5.9% in 1960. This increase in the share of those occupations was at the expense of declines in the share of production workers. Because the census of 1976 is not available in its totality, it is impossible to determine the current composition of employment in construction.[15]

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[15] The foregoing comparisons must be viewed with due caution, given the suspected error in official data.

2. Employment in the Construction Industry

We have noted earlier that, aside from some peculiarities in obser-vable data, the percentage of Egypt's labor force that is officially employed in the construction sector is about 2.8%. But providing a more precise in-dication of the exact extent, nature, and type of employment in the construc-tion industry is not an easy task. Variations in accounting methods, and in regional reporting reliability and seasonality, all contribute to ambi-guities regarding labor force availability and employment in this sector.

2.1 Total Construction Employment

Table I-2 above indicates a relatively stable proportion of employment in the construction sector as a percentage of total labor force. But these national level figures require close scrutiny and, on balance, hide some important changes in employment patterns for the construction sector.

By drawing upon alternative sources of data, it is possible to develop some more detailed indication of what is happening to employment in the construction sector. Although these sources may not, in fact, be entirely independent of each other, whatever differences do exist are likely to be revealing. Figure I-1 indicates the impressive upward trend in employment for this sector. This trend is derived on the basis of a series of discrete observations which do not always "match" other available information. See Table I-6.

Series A and B both come from the Labor Force Sample Surveys, May Rounds, and provide important data points for the years 1968-74.

The three points labelled Set C are based on a study undertaken by the

FIGURE I-I EMPLOYMENT IN THE CONSTRUCTION INDUSTRY: ALTERNATIVE ESTIMATES FROM SEVEN SOURCES
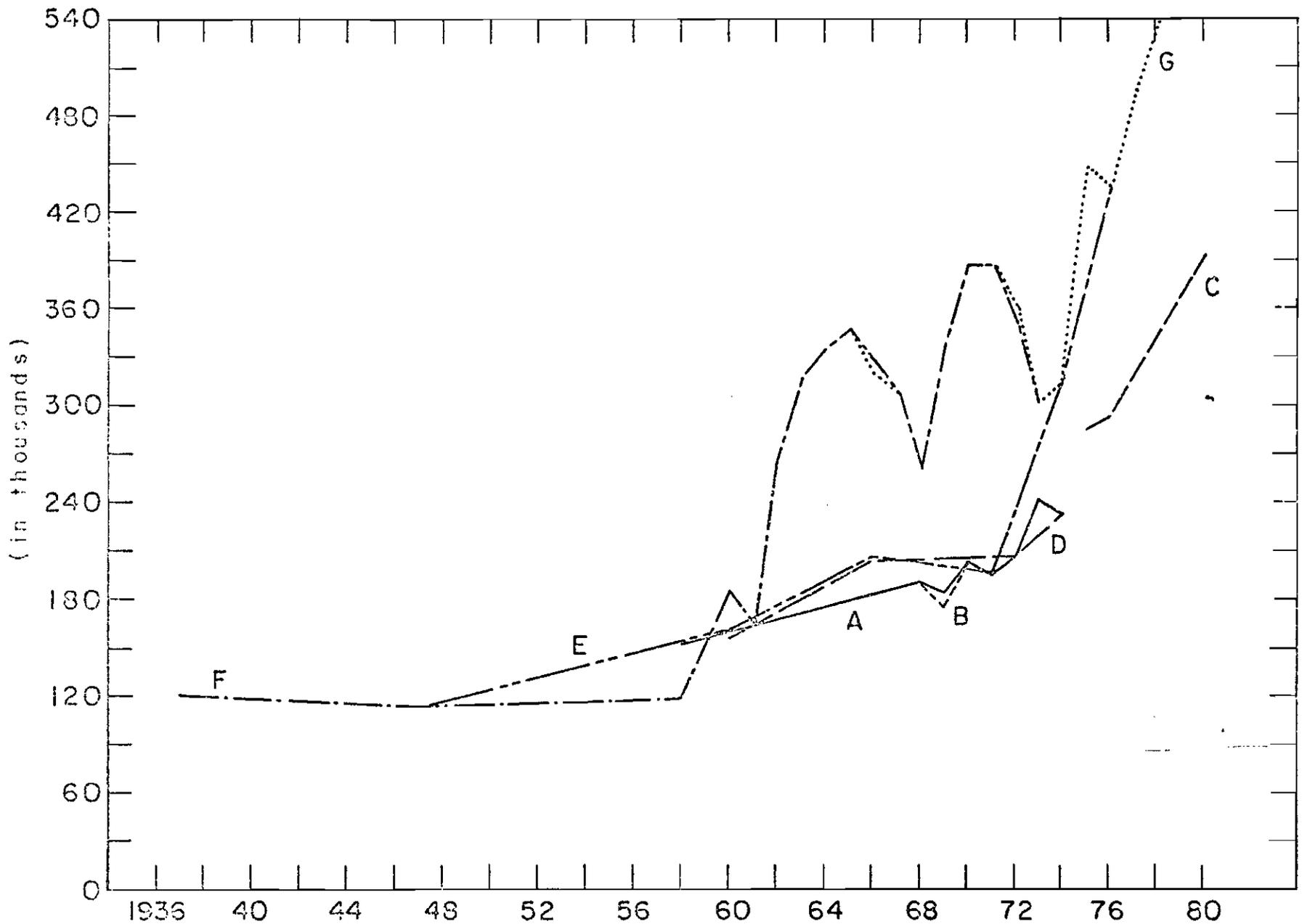
Table I-6

Employment in the Construction Industry: Alternative Estimates from 7 Sources

	A	B	C	D	E	F	G
1937						120,706	
1947					113,000	113,367	
1958	152,000					119,000	
1960				155,126	159,000	185,000	185,000
1961						166,000	166,000
1962						263,000	263,000
1963						315,700	315,700
1964						334,200	334,200
1965						345,200	245,200
1966				203,517	206,000	328,000	318,000
1967						307,600	307,600
1968	191,100	191,100				259,800	258,100
1969	184,700	176,100				338,000	338,000
1970	203,200	203,200				387,900	387,900
1971	194,900	194,900			195,000	387,900	387,900
1972	206,900	206,900		206,900		348,400	359,700
1973	242,400	242,400				302,300	302.300
1974	232,900	232,900		232,900	315,000		315,200
1975			285,000				447,400
1976			293,000		434,000		434,000
1977							493,700
1978							537,700
1980			392,000				

Table I-6 (continued)

Sources: A. Ministry of Labor study based on <u>Labor Force Sample Surveys</u> --
May rounds by CAPMAS, 1958, 1968-1974.

B. <u>Labor Force Sample Surveys</u>, 1968-1974.

C. Calculated from Ministry of Labor and <u>Labor Force Sample Survey</u>
data

D. Population Censuses, 1960 and 1966. <u>Labor Force Sample Surveys</u>,
1972 and 1974.

E. Population Censuses, 1947, 1960, 1966 and 1976. <u>Labor Force
Sample Surveys</u>, 1971 and 1974, CAPMAS. "Egypt: 1976-1980
5-Year Plan", Ministry of Planning.

F. 1937 and 1947 data are from census figures: the rest of the
data is from the <u>Labor Force Sample Surveys</u>.

G. <u>Ministry of Planning Followup Report</u>.

Ministry of Labor and reveal some of the expectations in future trends in construction industry employment. It might be worthy of note that the same general level of such employment is envisaged for 1980 at a little higher than 3%.

Series D combines data from the Labor Force Sample Surveys and the 1960 and 1966 censuses. Series E goes even further and combines what apparently are two distinct groups of data sets, one from the censuses and Labor Force Sample Surveys and one from the Ministry of Planning.

Finally, attention should be drawn to another set of estimates of employment in the construction industry, Series F and G. Series F, which is derived from a combination of census data as well as information from the Labor Force Sample Surveys and adjusted by the Ministry of Planning and Series G from the Ministry of Planning Follow-up Report, both indicate that by 1973 about 302,000 individuals were employed in the construction sector. The peculiarities of these two series are not only their relatively larger numbers, which might be due to a broader definition of "construction" than employed in other sources, but, more pertinently, the decline in 1968. That decline might be the result of employment adjustment following the war of 1967, or it might be due to a slump in construction activity at that time. The drop in 1973 might also be due to the same factors.

Table 1-7 presents two alternative series on construction employment, on the assumption that they yield two separate and internally consistent observations. Note the resulting differences in the percentage of construction employment to total employment and to the labor force. Here we seek only to draw attention to potential sources of discrepancy; in a subsequent

Table I-7a

Construction Employment as a Percentage of Total Employment
with Two Alternative Series of Construction Employment

Year	Total Employment (A)*	Construction Employment (B)	% B/A	Construction Employment (C)	% C/A
1937	5,806	120,706	2.1	120,706	2.1
1947	6,641	113,361	1.7	113,361	1.7
1958	6,711	119,000	1.8	152,000	2.3
1960	6,006	185,000	3.1	155,126	2.6
1961	6,492	166,000	2.6		
1962	6,657	263,000	4.0		
1963	6,868	315,700	4.6		
1964	7,085	334,200	4.7		
1965	7,374	345,200	4,7		
1966	7,480	318,000	4.3	203,517	2.7
1967	7,617	307,600	4.0		
1968	7,893	258,100	3.3	191,100	2.4
1969	8,132	338,000	4.2	184,700	2.3
1970	8,361	387,900	4.6	203,200	2.4
1971	8,458	354,000	4.2	194,900	2.3
1972	8,672	359,700	4.1	206,900	2.4
1973	8,860	302,300	3.4	242,400	2.7
1974	9,038	315,200	3.5	232,900	2.6
1975	9,433	447,400	4.7	285,000	3.0
1976	9,628	434,000	4.5	293,000	3.0
1977	9,988	493,700	4.9		
1978	10,359	537,700	5.2		

*In thousands.

Table I-7b

(continuation)

Year	Labor Force (A)*	Construction Employment (B)	% B/A	Construction Employment (C)	% C/A
1937	5,838	120,706	2.1	120,706	2.1
1947	6,995	113,361	1.6	113,361	1.6
1960	6,891	185,000	2.7	155,126	2.3
1961	6,589	166,000	2.5		
1962	6,389	263,000	4.1		
1966	7,635	318,000	4.2	203,517	2.7
1968	8,534	258,100	3.0	191,100	2.2
1969	8,773	338,000	3.9	184,700	2.1
1970	8,655	387,900	4.5	203,200	2.3
1971	9,055	354,000	3.9	194,900	2.2
1972	9,471	359,700	3.8	206,900	2.2
1973	9,267	302,300	3.3	242,400	2.6
1974	9,678	315,200	3.3	232,900	2.4
1975	10,345	447,400	4.3	285,000	2.8
1976	10,648	434,000	4.1	293,000	2.8
1980	11,868			392,000	3.3

*In thousands.

Sources för Table I-7

Construction Employment (C)

       1937 -- from 1937 Census
       1947 -- from 1947 Census
       1958 -- from Labor Force Sample Survey, May Round
       1960 -- from 1960 Census
       1966 -- from 1966 Census
       1968-1974 -- from Labor Force Sample Surveys, May Rounds
       1975 and 1976 -- from Ministry of Labor

Construction Employment (B)

       1937 -- from 1937 Census
       1947 -- from 1947 Census
       1958-1978 -- from Ministry of Planning

Total Employment

       1937 -- from 1937 Census
       1947 -- from 1947 Census
       1958 -- from Labor Force Sample Survey, May Round
       1960-1978 -- from Ministry of Planning Follow-up Report, 1977

Labor Force

       1937 -- from 1937 Census
       1947 -- from 1947 Census
       1960 -- from 1960 Census
       1961 -- from Labor Force Sample Survey, April Round
       1962 -- from Labor Force Sample Survey, May Round
       1966 -- from 1966 Census
       1968-1974 -- from Labor Force Sample Surveys, May Rounds
       1975, 1976, and 1980 -- from Ministry of Labor

section we draw attention to the possibility that the construction sector might be drawing larger numbers among the actively employed.

The historical trend in construction employment is worthy of note. Table I-6 above revealed a drop in employment in construction between 1937 and 1947. This includes the war period, where investment in both agriculture and industry was very low and hence construction activities slackened except for those construction activities connected with the allied forces: between 1947 and 1960 employment in construction increased by 37% at an annual rate of increase of 2.4%.[16] Investment in the economy shot up again in the post-war period, particularly in industry. Moreover, up to the middle of the 1950's. there was a housing boom which pushed up employment in construction. As a result of rent control laws in 1955 and 1958, investment in housing declined sharply in 1960-61,[17] which led to an increase in the rate of construction unemployment from 13.7% in 1958 to 17.8% in the next year. It was during the first five year plan in 1960-65 that the rate of unemployment started to decline sharply.

The years 1960-66 witnessed the largest increase in construction employment (31% at an annual rate of increase of 4.5%). This was the period of the first Five Year Plan when the investment level on the average reached between 18% and 20% of GNP and where gross investment increased by 43%.[18] This period also witnessed the beginning of the High Dam project, which employed around 27,000 construction workers in its first years.

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[16]See Table 1, Statistical Appendix.

[17]Table 9 in the Statistical Appendix goes back to 1959/60. There is a drop from 1959/60 to 1960/61, but during the following year, investment increased again.

[18]Calculated from U.R.E. Statistical Indicator 1952-1965, CAPMAS, July 1966, p. 37.

During the years 1966-74, there was only a slight increase in employ-
ment in the construction sector of around 14%.[19] And, between 1966 and 1972,
employment in construction revealed almost no increase at all. This period
is characterized by declining levels of investment as a result of alloca-
ting more resources to defense expenditures. Investment in new projects
nearly came to a halt.

But, since the late 1960's and early 1970's, a new factor emerged,
namely an increase in military expenditure. Construction activities asso-
ciated with military expenditures compensated to some degree for the fall
in total investment for the period. Since 1973, construction activity has
increased once again. This increase has been the result of a growing rate
of investment after 1973, due partly to the increase in the foreign finan-
cial inflow and, in part, due to the housing boom that has taken place since
1973. It may well be that these trends, coupled with the increase in the
flow of construction labor to the Arab world, created, in turn, a situation
of shortage of construction workers. As a result, the construction sector
may become a real bottleneck for further economic expansion in the economy.
In Part II, these hypotheses are examined. Again, these assessments must
take into account the fact that there remains considerable uncertainty about
the size of employment in the construction sector.

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[19]The Labor Force Sample Survey of 1974 put the figure for construction
workers as equal to 233,000, while the Ministry of Planning Follow-up
Report for the same year put the figure equal to 315,000. Moreover, in
1976, the Follow-up Report cites the figure as equal to 434,000.

2.2 Regional Differences in Construction Employment

Employment patterns within the construction industry in Egypt can best be understood in terms of four general indicators:

(i) The number of construction workers in each governorate;

(ii) The number of construction workers in each governorate as a percentage of that governorate's total employment;

(iii) The number of construction workers in each governorate as a percentage of the construction workers employed in Egypt as a whole;

(iv) A construction-concentration index, as a summary measure to reveal the proportion of construction workers in each governorate weighted by that governorate's proportion of the country's total employment.

While this information might appear redundant in nature, it reveals some fundamental features of employment in the construction industry that are suppressed when observing employment patterns at the national level. It should be noted, however, that governorate data reveal some peculiar characteristics that may indicate a degree of unreliability.

(i) Regional Distribution of Construction Workers

The distribution of construction workers in each governorate is presented in Figure I-2. These patterns reveal the predominance of Cairo as a focal point of employment in the construction industry. It is clear that Guiza and Alexandria also draw upon that sector as a major source of employment. All other governorates claim a small share of construction worker activities. Aswan, which employed a large number of workers for the construction of the dam, reveals a peak in 1969, followed by a decline that

FIGURE I-2   A COMPARATIVE DISTRIBUTION OF THE
CONSTRUCTION LABOR FORCE FOR EACH
GOVERNORATE 1966-74 IN THOUSANDS
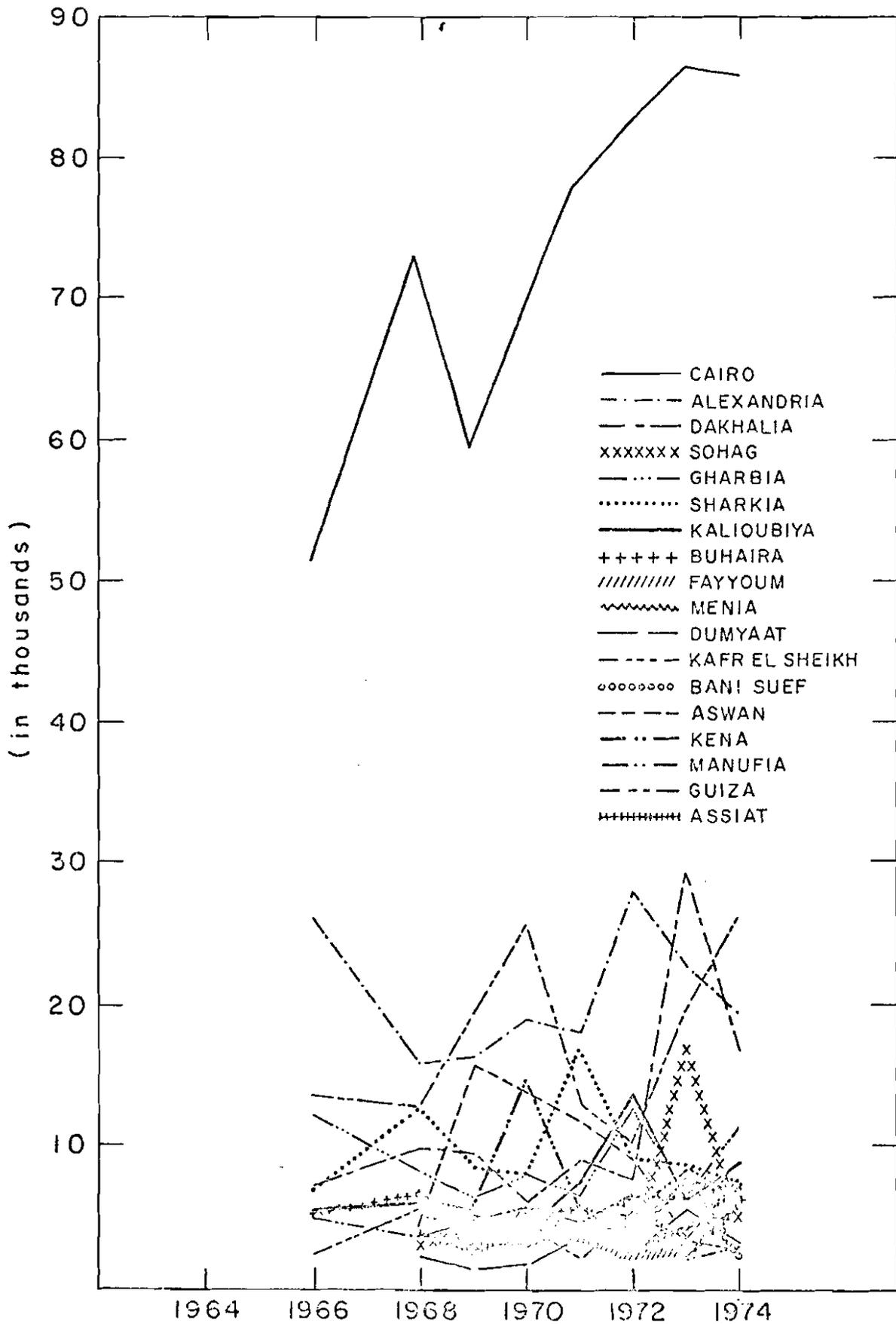
represents that governorate's more*traditional patterns of employment.

(ii) Construction Employment in Each Governorate as a Percentage of

Total Construction Employment

By transforming the data presented in Figure I-3 in terms of their

percentage of total construction labor in Egypt, we obtain a view of the

proportional share of the national construction labor force which is "cap-

tured" by the construction sector for each governorate. Clearly, a predo-

minant fraction of Egypt's construction work force is concentrated in Cairo --

between 33% and 40% during the period 1966-1974. Alexandria has also exhi-

bited some concentration of construction workers, though less than half that

of Cairo. Guiza, the third governorate with consistently high, though fluc-

tuating employment in construction, has claimed as low as 5% and as high

as 12.5% of all construction workers. Aswan drew workers from the national

pool only during the construction of the dam.

(iii) Construction Employment in Relation to Total Employment for

Each Governorate

The dominance of Cairo in construction employment is further revealed

in Figure I-4, which indicates the proportion of construction workers to

total workers in each governorate. A consistently higher percentage of

Cairo's total workforce is concentrated in the construction sector compared

to the other governorates. The only exception is Aswan from 1969 to 1971

when a large number of workers were brought in to complete the Dam. Guiza

and Alexandria are the only other governorates for which the percentage of

construction employment to total employment consistently exceeds the national

average as presented in Table I-2.

FIGURE I-3 THE SHARE OF EACH GOVERNORATE AS A
PERCENTAGE OF THE TOTAL NUMBER
OF WORKERS IN CONSTRUCTION

Legend:
- CAIRO
- ALEXANDRIA
- DUMYAAT
- DAKHALIA
- SHARKIYA
- KALIOUBIA
- KAFR EL SHEIKH
- GHARBIYA
- MANUFIA
- BUHAIRA
- GUIZA
- BANI SUEF
- FAYYOUM
- MENIA
- ASSIAT
- SOHAR
- KENA
- ASWAN

40

30

% 20

10

1964   1966   1968   1970   1972   1974
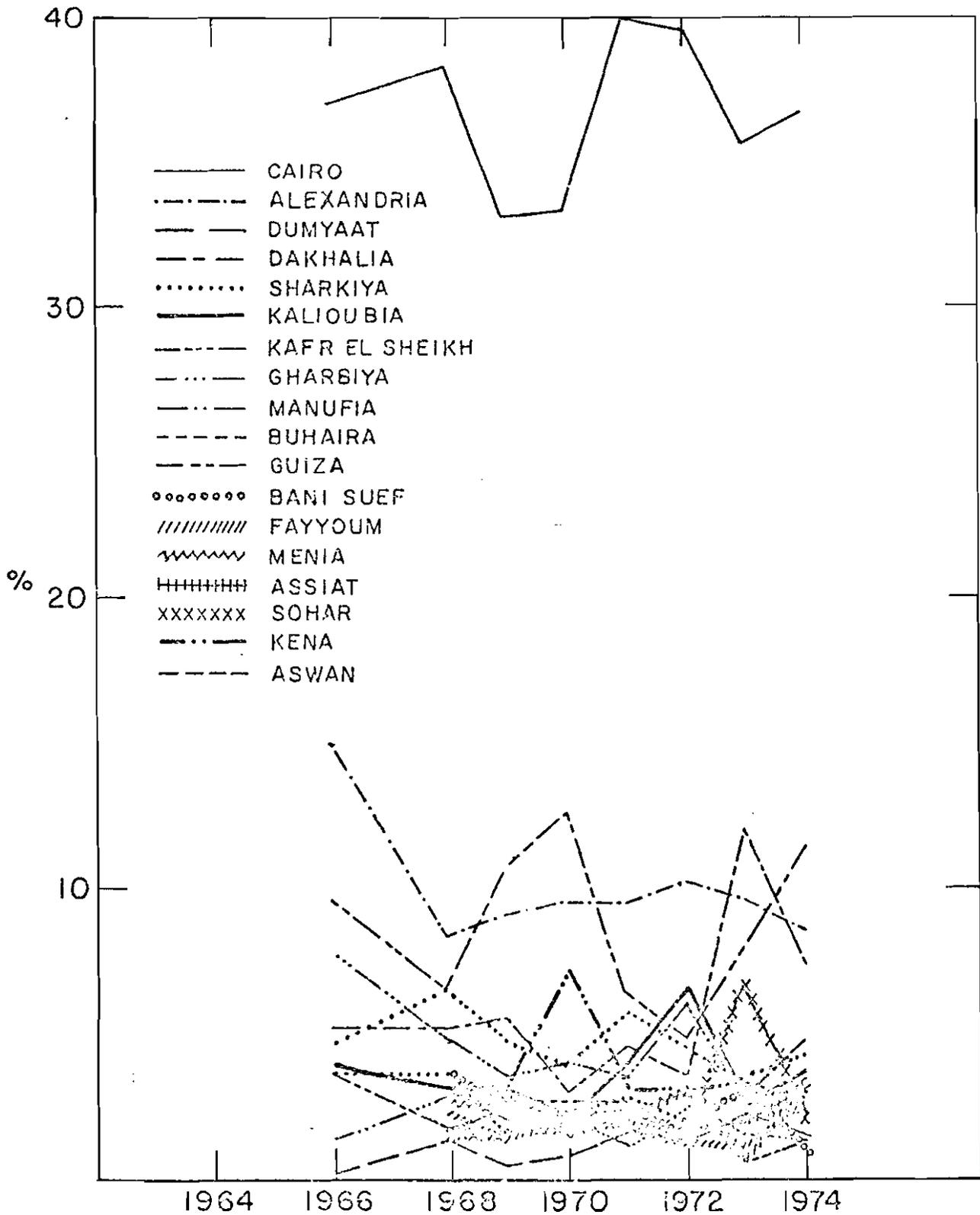
FIGURE I-4 A COMPARATIVE DISTRIBUTION OF THE
CONSTRUCTION LABOR FORCE FOR EACH
GOVERNORATE AS A PERCENTAGE OF
THAT GOVERNORATE'S TOTAL LABOR FORCE
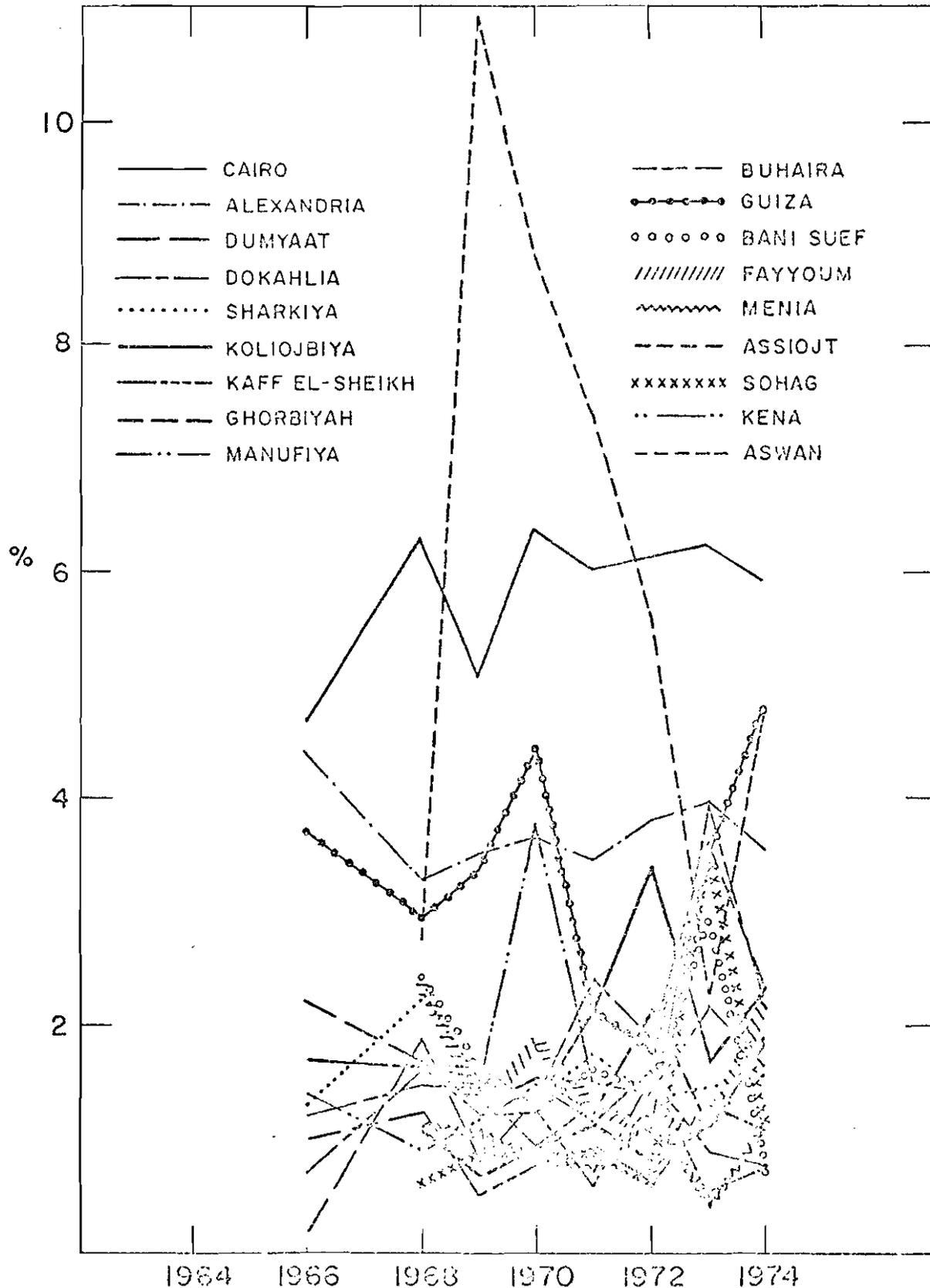
(iv) <u>The Relative Strength of Construction Employment</u>

The fourth, and more complex view of these trends can be gleaned by observing the ratio of two percentages; the number of construction workers in each governorate as a percentage of total construction workers in Egypt, on the one hand, and the total employment in each governorate as a percentage of the total employment in Egypt, on the other, as follows:

$$\frac{C_G}{C_T} \bigg/ \frac{TE_G}{TE_T}$$

This ratio provides a summary measure of the importance of construction workers in the labor force of each governorate. The numbers employed in construction are weighted by the governorate's total number of actively employed individuals. This ratio thus reveals the "real" regional differentials in the strength of employment for the construction industry (see Figure I-5).

This summary measure yields some comparative trends in each province for employment in the construction sector. It is clear that the greatest claims on the construction workers were in Aswan where the building of the Dam placed great pressures on manpower requirements. The dominance of Cairo is still apparent, as is that of Alexandria, relative to the other governorates.

2.3 <u>Unemployment in Construction</u>

The trend in construction activities can be followed by examining the rate of unemployment in construction. It must be noted, however, that the

FIGURE I-5 THE RELATIVE STRENGTH OF THE
CONSTRUCTION INDUSTRY IN EACH
GOVERNORATE 1966-74

Legend:
- CAIRO
- ASWAN
- DUMYAAT
- DOKAHLIA
- KALIOUBIYA
- SHARKIYA
- KENA
- BUHAIRA
- MANUFIYA
- KAFR EL SHEIKH
- ALEXANDRIA
- BANI SUEF

localization of unemployment in this sector is open to some doubt, given
the relative mobility of labor among different sectors of the economy. The
levels of unemployment in the construction industry, while traditionally
higher than the country's overall unemployment rate, have, in recent years,
declined dramatically and in 1971 were less than half of the unemployment
for the country as a whole. Table I-8 presents some figures on unemploy-
ment in the construction industry and contrasts these with the general rate
of unemployment. Note the variable trends and the sharp declines in 1971
and 1972. Some of these changes represent transformations in the economy
as a whole, and some are idiosyncratic to the construction sector. This
sector has been susceptible, to a remarkable degree, to the policies of
public sector expansion and to the retrenchments and subsequent growth in
the private sector following the liberalization of the economy.

Table I-8

Unemployment Rate in the Construction Industry

Year	Unemployment Rate in Construction (%)	General Rate of Unemployment (%)
1957	10.7	5.1
1958	13.7	3.4
1959	17.8	4.9
1960	15.3	4.8
1961	16.3	4.7
1962	5.6	2.2
1968	7.4	2.8
1969	4.7	2.5
1970	5.4	2.2
1971	0.8	1.7
1972	0.5	1.4

Source: Amr Mohie-El Din. Open Unemployment in the Egyptian Economy. Memo No. 1184. Cairo: The Institute of National Planning, 1977.

3.   Wage Rates

Wages in construction, agriculture, services, and mining and industry for the period 1960-78 are presented in Table I-9. These data indicate the marked increase in construction wages since 1973. They also reveal that the average annual rate of increase from 1974 to 1978 in construction was similar to that in the agricultural sector, although the levels are vastly different.

3.1   Wages in the Construction Sector

Table I-10 traces the evolution of the average money wage rate between 1970 and 1977 for different types of skills within the construction sector as a whole. The scale of the increase in wages of different types of construction labor is clearly delineated. In most of the skills and occupations, the increase ranges between threefold and fourfold, and in some cases, the wage rate increase was even greater. The degree of increase depended on changes on both the supply and demand sides of the labor market. Moreover, the sharp increase in wages took place after 1973, the year when the numbers of construction workers emigrating doubled when compared to previous years. Thus, in the case of masons, concrete mixing, and sanitary ware plumbing, the increase in the wage rate (1970-77) comes near fivefold, while in the case of porters and road leveling workers the increase is only about 150%.

The daily wage rates of Table I-10 are only an approximation of reality. The traditional system of labor contracts in construction activities does not fix wage or remuneration per day or per week. The average fixed daily wage applies only to some casual work like repair to some small volume

Table I-9

Average Wage Per Worker 1959/60 - 1978
(in Egyptian pounds)

Year	Construction	Agriculture	Services	Mining & Industry
1960	161.6	30.2	164.5	147.6
1961	164.4	27.5	162.5	147.7
1962	159.3	32.5	161.7	153.3
1963	150.1	34.8	185.5	172.2
1964	156.2	37.9	190.2	174.8
1965	155.6	44.6	208.4	181.3
1966	170.4	50.8	209.3	183.4
1967	180.4	53.3	213.5	183.3
1968	182.8	51.7	208.7	181.9
1969	182.8	53.1	223.4	184.3
1970	184.6	53.9	238.6	187.6
1971	184.2	55.0	241.0	190.0
1972	190.4	55.4	251.0	255.2
1973	233.3	60.5	266.0	287.1
1974	233.2	70.8	295.0	297.0
1975	376.2	106.5	314.8	292.4
1976	378.7	107.0	327.1	305.9
*1977	328.3	107.6	340.0	320.0
*1978	354.7	108.0	353.4	334.7

Increase:	119%	258%	115%	127%
Average Annual Increase:	4.4%	7.1%	4.2%	4.5%
Increase from 1974-78:	52.1%	52.5%	19.8%	12.7%

Source: Ministry of Planning Followup Report, 1977.

*Projections

Table I-10

Average Daily Wage Rate for Different

Occupations of Construction Labor,

L.E. per day

Occupation	Average Daily Wage Rate					% Change
	1970	1973	1975	1977 (1)	1977 (2)	1970-1977
Stone Cutter	0.6	0.9	1.5	2	1.76	193
Builder (Brick layer)	1.5	2.5	3.5	4.5	5.7	280
Assistant Builder	0.6	1.5	2.0	3.0	3.5	483
White Washer	0.75	0.9	2.0	3.0	3.5	366
Assistant White Washer	0.5	0.6	1.0	2.0	1.76	250
Painter (for building)	0.8	1.0	2.0	2.5	3.23	300
Assistant Painter	0.5	0.7	1.25	1.5	1.58	216
Carpenter for concrete forms	0.9	1.25	2.0	3.0	3.49	287
Assistant Concrete Carpenter	0.6	0.8	1.5	2.0	2.5	316
Metal Worker for Reinforced Concrete	0.6	0.9	2.0	3.0	3.55	491
Asst. Metal Worker for Reinforced Concrete	0.5	0.7	1.5	2.5	2.06	312
Reinforced Concrete Worker	0.45	0.6	1.5	2.5	1.35	200
Blacksmith	0.7	1.0	2.0	3.5	3.0	328
Machine Joiner	0.8	1.0	2.5	4.0	---	400
Door & Window Carpenter (joiner)	0.8	1.25	2.0	3.5	3.49	338

Table I-10 (continued)

| Occupation | Average Daily Wage Rate | | | | | % Change |
	1970	1973	1975	1977 (1)	1977 (2)	1970-1977
Assistant Door & Window Joiner	0.5	0.8	1.25	2.0	2.5	300
Concrete Specialist	0.6	0.9	2.0	3.0	1.45	400
Assistant Concrete Specialist	0.5	0.8	1.75	2.75	0.85	450
Tile Fitter	0.9	1.5	3.0	5.70	5.7	533
Assistant Tile Fitter	0.60	1.25	2.0	3.60	3.5	483
Tile Maker	0.750	1.25	2.5	4.0	---	433
Stone Breaker	0.8	1.25	2.5	3.5	1.58	338
Glazed Tile Worker	1.5	3	5	7	5.7	366
Marble Worker	1.0	1.7	2.5	4	3.5	300
Wood Cutter	1.75	1.25	3.0	3.5	1.58	366
Sanitary Ware Plumber	0.8	1.5	4.0	5.0	3.5	525
Assistant Sanitary Ware Plumber	0.5	0.9	2.0	2.5	1.5	400
Installations Electrician	0.75	1.0	2.0	3.0	3.23	300
Assistant Installations Electrician	0.5	0.75	1.5	2.0	1.45	300
Architectural Worker	0.4	0.6	1.25	2.0	1.06	400
Construction Foreman	0.5	0.8	1.25	2.0	3.23	300
Glass Fitter	1.0	1.8	3.5	5.0	---	400

Table I-10 (continued)

Occupation	Average Daily Wage Rate					% Change 1970-1977
	1970	1973	1975	1977 (1)	1977 (2)	
Architect	1.0	1.8	3.5	5.0	---	400
Civil Engineer	0.8	1.0	2.0	2.5	---	213
Concrete Mixing Specialist	0.6	0.9	2.0	3.0	---	400
Architectural Draftsman	1.0	1.45	2.25	3.0	---	200
Floor Carpenter	0.8	1.25	2.0	3.5	---	338
Building Contractor	4.0	5.6	8.0	10.0	---	150
Concrete Mixer Mechanic	0.6	0.9	2.0	3.0	2.06	433
Ceiling Cover Worker	0.5	0.7	1.0	1.25	1.06	150
Porter	0.5	0.9	1.0	1.25	1.25	150
Kahla Worker	0.6	0.9	2.0	3.0	3.23	400
Insulator Technician	0.9	1.25	2.0	3.0	1.22	233
Assistant Architectural Supervisor	0.5	0.7	1.25	1.5	1.5	200
Road Leveling Worker	0.6	0.8	1.0	1.25	---	108
Draftsman	1.0	1.45	2.25	3.0	2.03	200
Measurer	8.5	10.5	15.0	20.0	---	135
Building Supervisor	0.6	0.8	1.0	1.25	1.22	108
Light Installation Electrician	---	---	---	---	---	---
Electric Tester	0.6	0.8	1.25	2.0	---	233
Bricklayer (mason)	1.0	2.0	3.0	5.7	5.7	470

Table I-10 (continued)

Occupation	Average Daily Wage Rate					% Change 1970-1977
	1970	1973	1975	1977 (1)	1977 (2)	
Concrete Plate Porter	0.6	0.9	1.25	2.5	1.35	316
Marble Cutter	1.0	2.25	3.5	4.5	3.55	350
Cement Paster	0.8	1.0	1.25	1.8	1.76	125

Source: These values were obtained from the files of "Anwar El-Hamaki, Engineers and Contractors", Private Contractors; the data for No. 2 for 1977 were obtained from the file of the "Arabic Company Contractors" Ltd.

of work that does not require the accounting of the volume of production.

The traditional system refers to a settled "norm" of work to be done per day in each occupation in construction activities, called a "tariha" in the local idiom. For example, a bricklayer is expected to lay a certain number of cubic meters of bricks per day. When the contract is made, workers normally receive a "biata", an advance of approximately two pounds, to accept the work without a written contract. Thereafter, he receives a daily "salafia", or loan on account. At the end of each week, his account is settled according to the "tariha", and he is given any outstanding wages. Usually, there is no written contract. Table I-11 shows how the average daily wage in Table I-10 calculated according to the "tariha" system. Since this system is based on the volume of work, it is difficult to transform these data into weekly wage rates for other than certain public sector labor wages. In short, the wage rate is calculated from the actual volume of production. The evidence is unmistakable: wage rates have increased markedly.

Table I-11

Average Daily Wage for Construction Workers in 1977

According to the "Tariha" System

Occupation	"TARIHA" the Production Norm	Daily Wage per TARIHA	Accounting Unit
Ordinary Worker	According to type of work	1.5 - 2 LE	---
Digging Worker	2 - 3 M^3	1.5 - 2 LE	M^3digging 0.7 - 1.0 LE
Reinforced Concrete Carpenter	2 - 1.5 M^3	4 - 5 LE	M^3concrete 5 LE
Reinforced Concrete Blacksmith	2 - 2.5 M^3	3 - 3.5 LE	M^3concrete 2 LE
Tractor Worker	8 M^3	3 - 3.5 LE	---
Reinforced Concrete Worker	2 M^3	2.5 - 3 LE	---
Red Brick Layer	18 - 20 M^3 (1/2 brick)	5 LE	(M^3bricklaying 5 LE)
Rubble Layer	4 M^3	5 LE	(M^2rubble 5 LE)
Whitewasher	15 - 2o M^2	4 - 6 LE	M^2whitewash .7 - .8 LE
Assistant Whitewasher	15 - 20 M^2	2.5 - 3 LE	---
Sanitary Plumber	Fixing a piece with its components	4 - 5 LE	70 - 90 LE per flat
Electrician	Fixing pipes for average flat	3 - 4 LE	Bulb manuf. 1.5 - 1.7
Tile Worker	15 - 20 M^2	5 - 7 LE	M^2 5 - 7 LE
Glaze Tile Worker	10 - 15 M^2	7 - 10 LE	M^2 1.5 LE
Marble Worker	3 - 4 M^2	5 - 7 LE	M^2 - 3 LE
Painter (building)	30 - 40 M^2	4 - 5 LE	M^2 Painting four times
	overtime		1 - 1.27 LE

Source: These data were obtained in an interview with Egyptian contractors.

4. Migration of Construction Workers

As noted earlier, the movement of Egyptians to other Arab countries
has taken a dramatic upward swing from 1973 to the present time. The tra-
ditional view of Egyptians as close to their land as reluctant to seek em-
ployment elsewhere has been severely shaken by the dramatic outflows fol-
lowing the oil price increases and the economic expansion of the oil pro-
ducing countries.

4.1 General Patterns of Migration

Figure I- 6 presents a summary of the flow of overall out-migrants.
The growth in 1973 reflects a change in economic conditions in the Arab
countries as well as changes in domestic politics in Egypt. The abolition
of the exit visa reflects most clearly this change in orientation. Simi-
larly, the stock of Egyptians living outside of the country has increased
from an estimated 100,000 in 1965 to 1.425 million in 1976.[20]

There also appears to be some marked seasonality in the flows of out-
ward-bound Egyptians. Figure I- 7 indicates the quarterly movements. The
sources of this seasonality are yet to be explained, but suffice it here
to note the peaks and troughs.

4.2 Migration by Type of Skill

While it is also difficult to obtain a consistent view of the migration
of Egyptians by occupation or skill, there are some consistent figures for
a six-year period, 1968-73. These provide a useful background against which

[20]The 1976 estimate is from the 1976 census. The 1960 estimate is from
A. Gritley, Population and Economic Resources in U.A.R. (Cairo, 1962).

FIGURE I-6   THE NUMBER OF EGYPTIANS LEAVING EGYPT PER YEAR
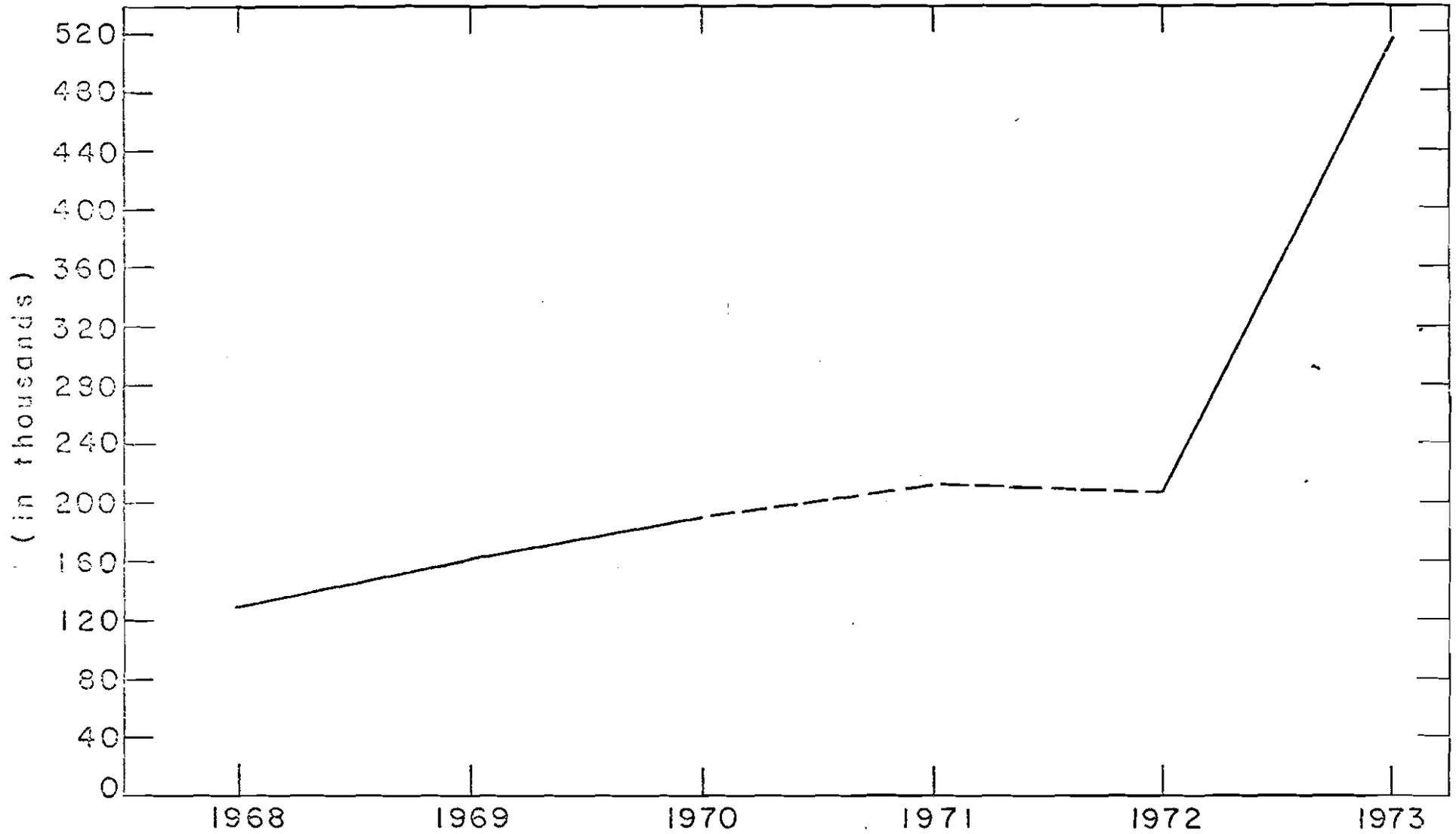
FIGURE I-7   THE NUMBER OF EGYPTIANS LEAVING EGYPT PER QUARTER
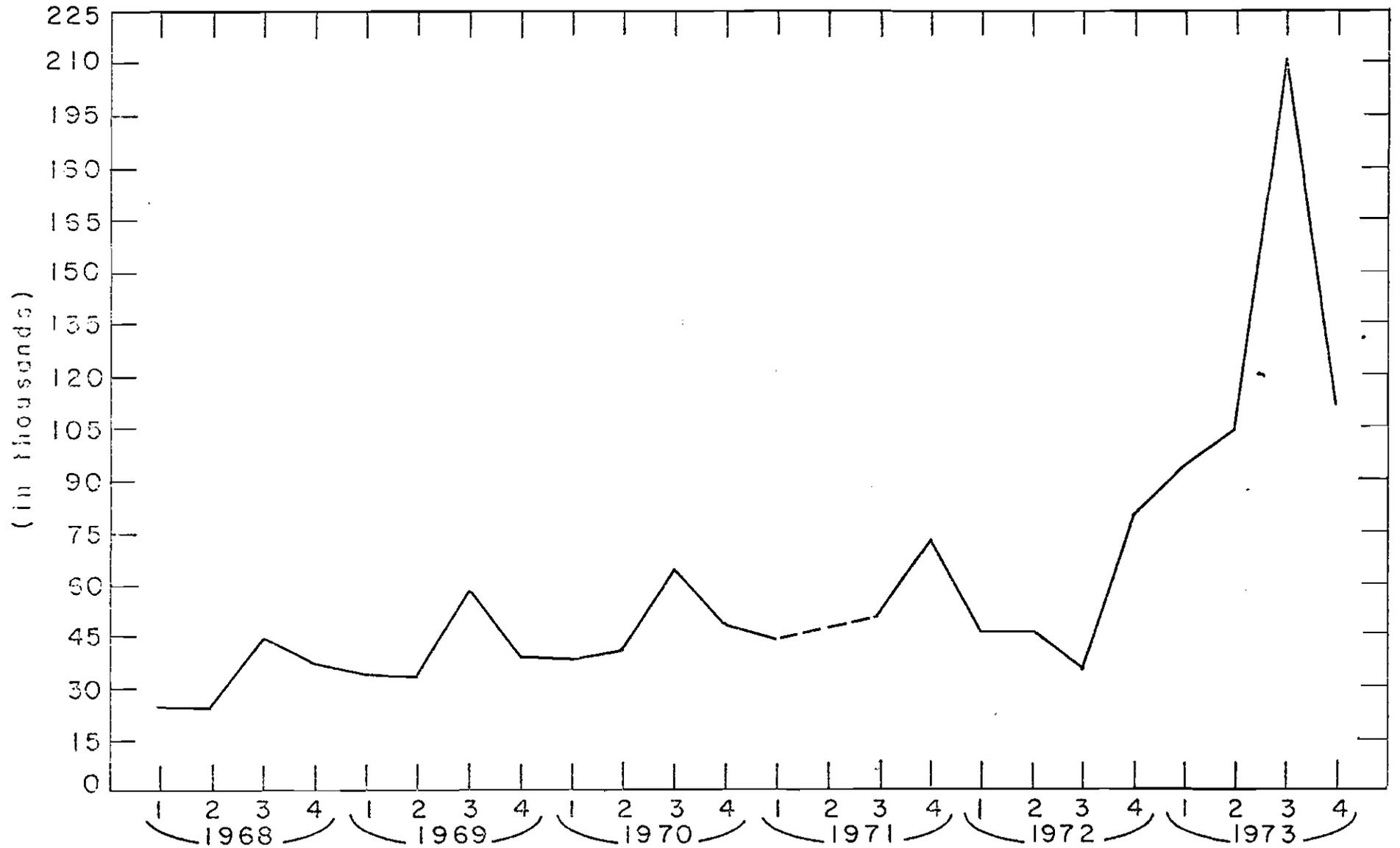
Table I-12

Interpolation Technique for Missing Data

Notes on Procedure:

The procedure used to estimate missing numbers in the 1971 data was to find an average value based on what the number would be if one used the change between the corresponding quarters of adjacent years and the change of adjacent quarters across these same years.

Mechanically, the procedures consisted of assembling a matrix of the eight numbers surrounding the missing number in the larger original matrix, the missing number being the second quarter of 1971. This matrix look like the drawing below:

	1st	2nd	3rd
1970	A	B	C
1971	D	(missing value)	E
1972	F	G	H

The percentage change between each of the entries as one goes down and/or to the right was calculated, for example B/A, D/A and H/E. The resulting 8 values were then multiplied by the number with the corresponding change to the missing value. For example, D was multiplied by B/A and G/F; B was multiplied by D/A and E/C. For G and E, though, since one was calculating "what times F/D or H/E gives G" rather than "B times D/A or E/C gives what," one had to either multiply by the reciprocal (E/H rather than H/E) or divide in order to get an estimate of the missing value.

The end result of that multiplying and dividing was 8 estimates of the missing value. The mean average of those estimates was used as the missing values.

In order to estimate the value of some categories for the first quarter of 1968 (due to their being aggregated into a larger catagory for that one quarter), a slightly different procedure was used. The calculations were similar, but due to the first quarter of 1968 being the first data point, a different matrix had to be constructed. Its representation is:

	1st	2nd	3rd	4th
1968	missing value	A	B	C
1969	D	E	F	G
1970	H	I		
1972	J	K		

(1971 was deleted because the second quarter value was only an estimate)

In this case, the percentage changes calculated were E/A, F/B, G/C, E/D, I/H and K/J. Six estimates of the missing value were generated by dividing D by the first three ratios in the preceding sentence and dividing A by the other three ratios. Again, the mean average of the six estimates was used as the missing value.

to view more recent trends in migration induced by the growth of demand for Egyptian workers in other Arab countries.

Table I-13 presents a breakdown of migrants by type of occupation,[21] and includes only those who have left Egypt to work or to find employment. Thus, they constitute only 34.5% of the migrants for 1968 and 28.8% of the migrants in 1973. Note the relatively higher proportion of clerks and teachers, which is consistent with the traditional pattern of Egyptian migration to other Arab countries. Over this period, painters, masons, and carpenters (a conservative definition of construction workers) are the third highest identified group of migrants.

4.3 Migration by Country of Destination

One of the most dramatic factors in the migration of Egyptians to other Arab countries is the large differential in the country of destination. As noted in Figure I-8, all Arab countries have received Egyptians, but it is Libya that has had the largest number of migrants. The increase was particularly dramatic in 1973. If our estimates of the missing quarter data for 1971 are correct, then that year also represents an increase in migrants to Libya. The peak for that year, relative to other Arab countries, is, of course, due to the difference in the figures for the adjacent data

[21]Those leaving "to work" or "to find employment" are classified under the following categories in Table 5 of Migration of Population across the Frontiers of the Arab Republic of Egypt by the Central Agency for General Mobilization and Statistics: "official mission -- both government and public sector", "work under a security permit", "work under a personal contract", "work under no contract", and "searching for a job". Other categories included in Table 5 are: "emigration", "diplomatic mission", "to study", "tourism and visits", "medical care", "tourism of old persons", "Egyptians returning to their country of immigration", and "other purposes". The same format is used for all the volumes on migration prepared by CAPMAS.

FIGURE I-8 THE NUMBER OF EGYPTIANS LEAVING TO WORK IN SIX OTHER ARAB COUNTRIES PER YEAR
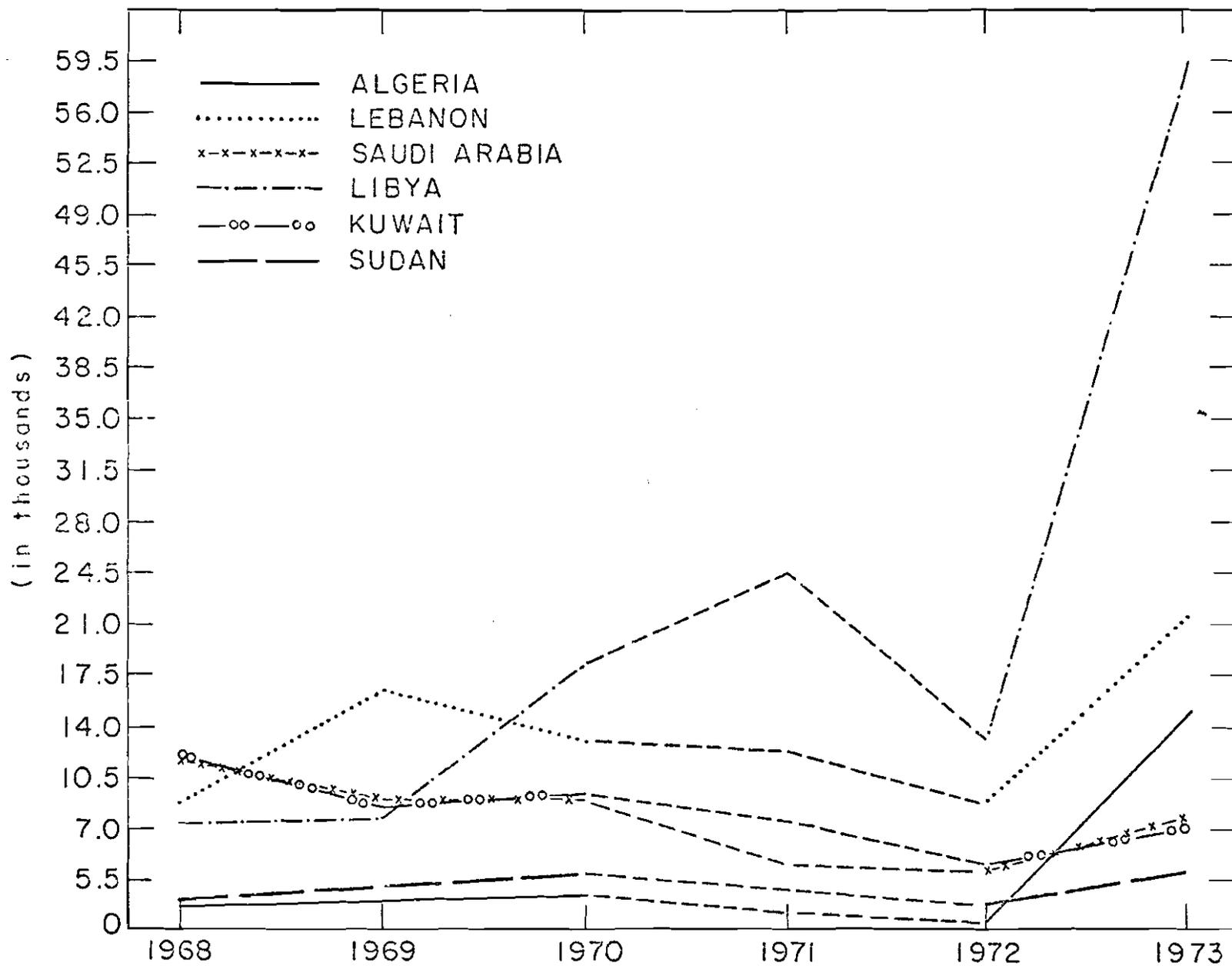
Table I-13

THE PERCENTAGES OF EGYPTIANS LEAVING TO WORK OR FIND A JOB BY OCCUPATION
1968-1973

Occupation	1968	1969	1970	1971	1972	1973
Engineers	5.5	5.1	5.7	5.6	9.3	3.4
Doctors, Pharmacists, and their assistants	2.3	2.1	3.3	4.2	7.4	3.0
Teachers	12.3	12.4	11.3	11.4	10.5	23.8
Administrators and Directors	5.6	4.8	5.0	4.5	6.4	2.3
Clerks	13.3	13.3	15.0	17.7	15.7	12.4
Salesmen	4.5	5.3	3.8	2.9	2.3	1.6
Workers in Services	6.0	6.8	5.3	5.1	4.3	3.8
Workers in Agriculture	0.9	1.0	1.4	2.4	2.3	3.1
Workers in Transportation	4.8	4.3	4.0	3.1	3.2	2.7
Painters, Masons, and Carpenters	9.1	6.8	8.2	10.3	6.8	5.5
Mechanics and Electricians	3.0	3.4	3.7	3.4	2.8	6.8
Job not specified or no job	20.3	24.1	23.3	22.0	15.6	23.5
Other jobs	12.4	10.6	10.0	7.4	13.4	8.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Source: The Migration of Population across the Frontiers of the Arab Republic of Egypt, CAPMAS, 1968-1972 published quarterly, 1973 in one volume.

points surrounding the missing observations. Nonetheless, the differences
are instructive.

These differences become clearer as one observes the variations that
emerge on a quarterly basis. Figure I-9 reveals these differences clearly.
Again, the sharpest increases are for Libya. It is noteworthy that the
fourth quarter of 1971 represents a peak of impressive dimensions.[22]

Other countries have also had substantial gains in terms of Egyptian
migrants, although the patterns are different over time, as are the peaks
and troughs for different recipients. These variations may be due to poli-
tical factors, to economic conditions or, perhaps, even to differences in
reporting methods. The important point, however, is that both figures re-
veal substantial movements -- quarterly and annually -- of Egyptians across
national boundaries to other Arab countries.

4.4 Migration of Construction Workers

While detailed data on the migration of Egyptians by country of des-
tination and skill cateogry are not readily available, it is possible to
pull together some estimates of migrants by type of skills. Figure I-10,
based on Egyptian government sources, reveals some dominant patterns in the
migration of construction workers by type of skills. Unfortunately, only
three major categories in the construction sector are indicated, namely,
mechanics and electricians, painters, masons and carpenters, and engineers.
It should be observed that there has been a notable increase in the

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[22]Only the total number of Egyptians migrating is disaggregated on a quar-
terly basis in 1973. Other data, such as migration by occupation or by
country of destination, are available only as the yearly total. As a re-
sult, only a crude estimate of the change from 1972 to 1973 can be made.

FIGURE I-9   THE NUMBER OF EGYPTIANS LEAVING TO WORK IN SIX OTHER ARAB COUNTRIES PER QUARTER
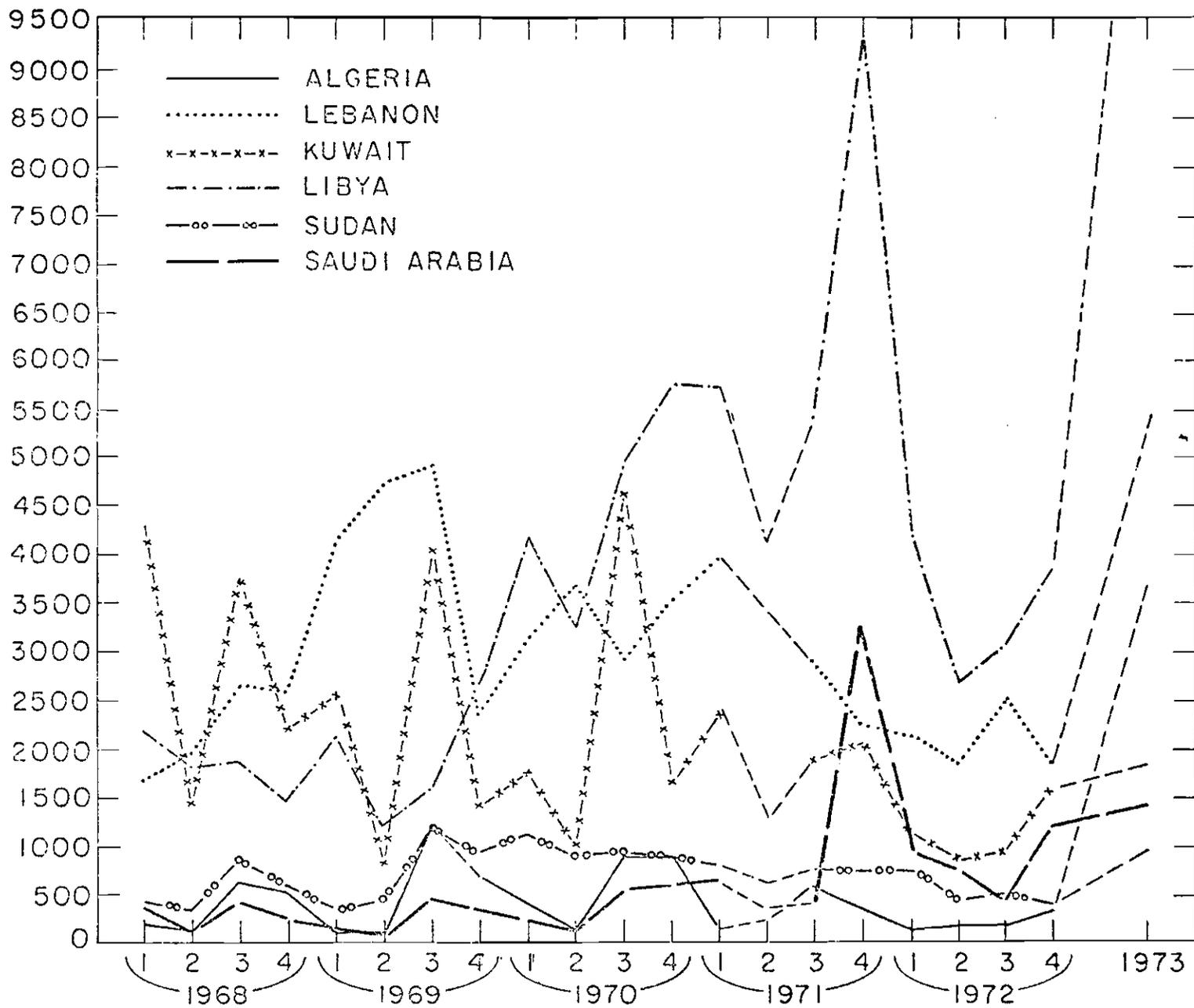
FIGURE I-10 THE NUMBER OF EGYPTIANS WITH CONSTRUCTION
INDUSTRY SKILLS LEAVING EGYPT TO WORK
PER YEAR
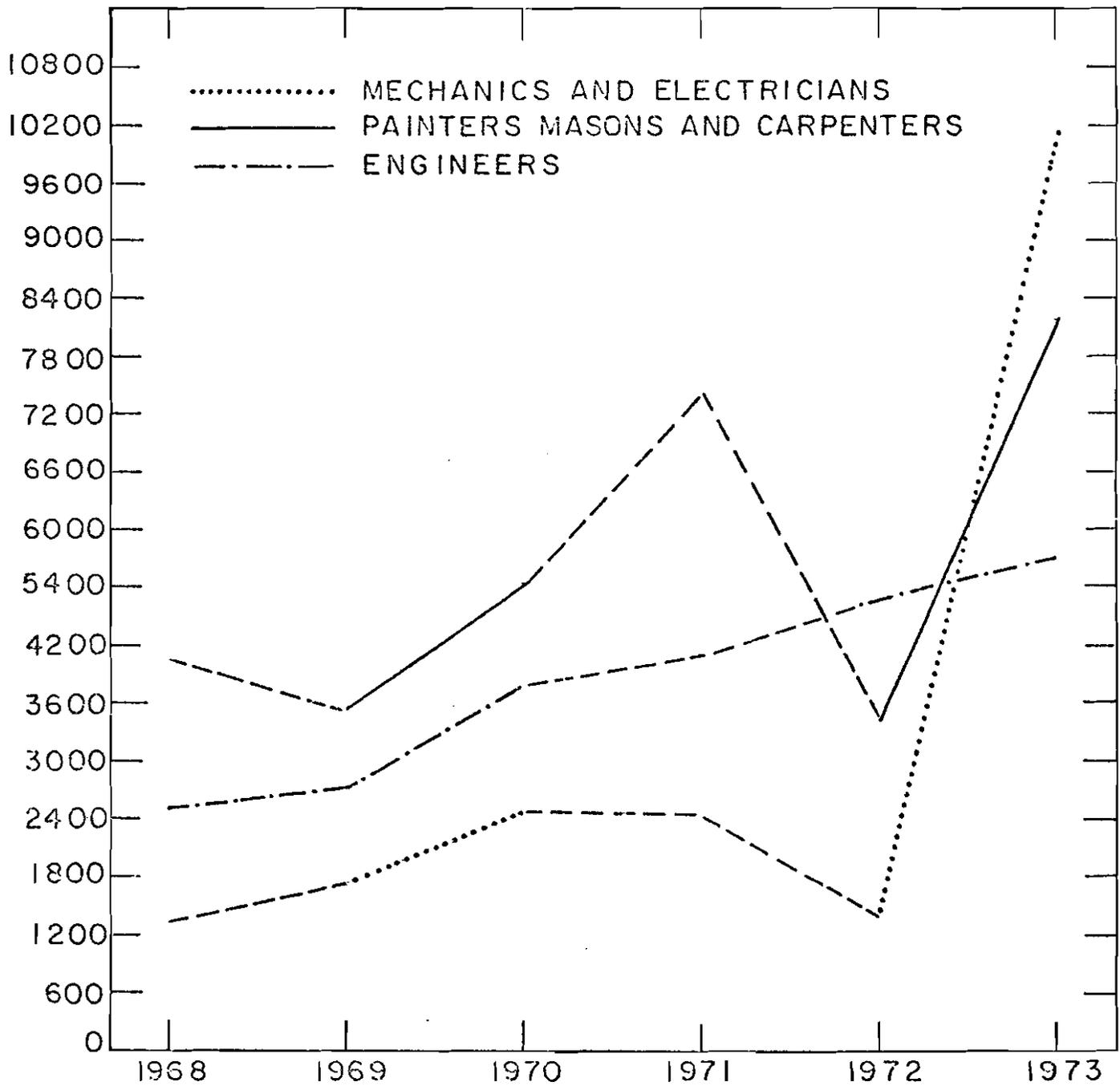
migration of the engineers which represents the intersection of two trends: first, a continuation of the migration of skilled Egyptians to other Arab countries; and second, a dramatic increase in the "pull" from the construction activities in other countries.

These annual trends are further clarified by observing their disaggregation on a quarterly basis. In that respect, there is a clear outlier in the movement of painters, masons, and carpenters for the last quarter of 1971. Apparently, these individuals have been the first to take advantage of the opening up of Egypt's borders with other Arab countries (see Figure I-11).

From these aggregated figures -- and the quarterly data -- it is not possible to determine which types of construction-related skills migrate to which Arab countries. By observing the types of migrant skills that appear to have been drawn to Libya, we can make some inference regarding the nature of the most dominant trends in the construction industry. Libya is a "critical case", not only because of the contiguousness with Egypt and the general openness of the border between the two countries, but because of the major differences between them in levels of skill and the increasing recruitment of Egyptian workers in the Libya economy.

4.5 Migration of Construction Workers to Libya

Egyptian sources, reporting on the number who left on the basis of a private contract, record that in 1974, the number of Egyptians migrating to Libya was 39,552. One year later there appeared to be a slight decline to 34,032. In 1976, the number increased to 46,537. Of that number of

FIGURE I-II THE NUMBER OF EGYPTIANS WITH CONSTRUCTION INDUSTRY SKILLS LEAVING EGYPT TO WORK PER QUARTER
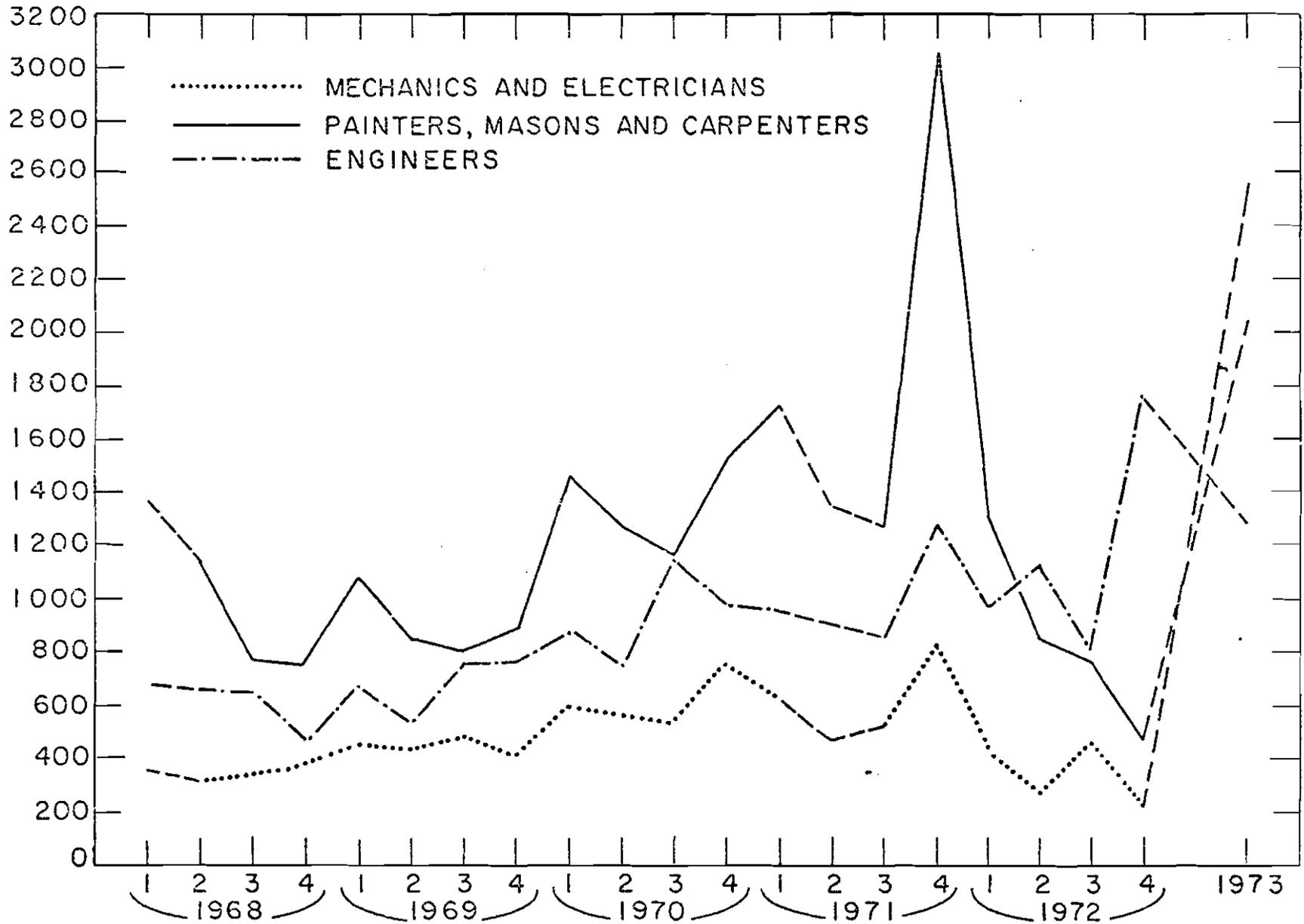
migrants, it appears that in 1974, 69% were construction workers. In the following year, that percentage dropped slightly to 66%, while in 1976, approximately 65% of all migrants to Libya were in the construction sector.

Thus, while these figures are incomplete estimates, they do indicate the predominance of the construction sector in attracting migrants to Libya. Alternatively, they indicate the extent to which the Egyptian economy has "lost" portions of its construction labor force.

It is, perhaps, a peculiarity of the Egyptian relationship to Libya in the construction sector that there is an extensive "Egyptian-sector" participation in the Libyan economy. This refers largely to the operation of private firms in Libya. In any event, it should be noted that most migration is absorbed by the "Libyan-sector", namely that part of the economy that is run and managed by Libyans. A residual number -- a little over 5,000 individuals in relation to a total of 27,454 migrants absorbed by the private sector rather than government contracts -- became part of the "Egyptian-sector". The details of this migration are presented in Table I-14.

Among the most notable features of the patterns in Table I-14 is the large number of relatively skilled migrants. It is with caution that we use the term "relatively", since tile layers do possess important skills, but they must be differentiated from engineers. The point here is that some of the movement has been of individuals with relatively unskilled capabilities, but who are critical to the overall functioning of the construction industry. In those terms, therefore, the movement of construction workers to Libya represents a critical feature of the new migration of Egyptians. Individuals of all skills are moving across national boundaries. No longer

Table I-14

Egyptian Migrants to Libya, in the Construction Industry
(1974-Private Contracts)

Occupation/Activity	Egyptian Sector	Libyan Sector	Total	% Total
Stonecutter	4	47	51	.19
Builder (mason)	279	1,839	2,118	7.71
Assistant builder (mason)	10	2	12	.04
Whitewasher	960	3,336	4,296	15.65
Assistant whitewasher	45	147	192	.70
Painter	200	664	864	3.15
Assistant painter	-	2	2	.01
Reinforced concrete carpenter	994	4,282	5,276	19.22
Assistant concrete carpenter	13	40	53	.19
Reinforced concrete blacksmith	594	2,728	3,322	12.10
Assistant concrete blacksmith	2	16	18	.07
Reinforced concrete worker	5	16	21	.08
Blacksmith	6	49	55	.20
Machine worker for carpenters	-	297	297	1.08
Carpenter for doors & windows (joiner)	22	1,235	1,257	4.58
Assistant carpenter for doors & windows	-	1	1	.00
Concrete specialist	454	565	1,019	3.71
Assistant concrete specialist	-	2	2	.01
Tile fitter	218	1,490	1,708	6.22
Assistant tile fitter	-	1	1	.00
Tile maker	-	219	219	.80
Stone breaker	23	2	25	.09
Glazed tile worker	14	52	66	.24
Marble worker	13	95	108	.39
Wood cutter	120	524	644	2.35
Sanitary ware plumber	275	922	1,197	4.36
Assistant sanitary ware plumber	17	6	23	.08
Installations electrician	177	474	651	2.37
Assistant installations electrician	-	14	14	.05
Construction worker	414	2,905	3,319	12.09
Air conditioning worker	-	2	2	.01
Construction foreman	84	181	265	.97
Glass fitter	-	1	1	.00
Architect	27	34	61	.22
Civil engineer	46	149	195	.71
Specialist in concrete mixing	6	-	6	.02
Designed (drafsman)	8	7	15	.05
Floor carpenter	-	7	7	.03
Constractor	5	66	71	.26
TOTAL	5,035	22,419	27,454	100.00

Source: Libya Ministry of Labor, Department of Immigration.

Table I-14 (continued)

Egyptian Migrants to Libya in the Construction Industry
(1975-Private Contract)

Occupation/Activity	Egyptian Sector	Libyan Sector	Total	% Total
Architect	-	198	198	.90
Draftsman	21	11	32	.15
Construction foreman	54	23	77	.35
Assistant architect	50	12	62	.28
Architectural foreman	-	190	190	.86
Electrician	4	688	692	3.14
Sanitary ware plumber	5	1,122	1,127	5.12
Blacksmith	-	138	138	.63
Exterior wall decorator	-	3	3	.01
Concrete worker	1,083	675	1,758	7.98
Worker for ceiling covering	1	-	1	.00
Glass fitter	-	2	2	.01
Porter	232	2,077	2,309	10.48
Builder (mason)	499	1,297	1,796	8.16
Assistant builder (mason)	33	-	33	.15
Whitewasher	860	2,626	3,486	15.83
Assistant whitewasher	89	109	198	.90
Painter	224	678	902	4.10
Carpenter for concrete forms	1,037	2,576	3,618	16.41
Asst. carpenter for concrete forms	15	591	106	.48
Metal worker for reinforced concrete	708	1,066	2,274	10.33
Asst. metal worker, reinforced concrete	8	54	62	.28
Carpenter for doors & windows (joiner)	196	884	1,080	4.90
Tile fitter	302	1,109	1,411	6.41
Assistant tile fitter	1	42	43	.20
Tile maker	-	207	207	.94
Porcelain worker	-	33	33	.15
Marble worker	55	90	145	.66
Wood cutter	95	94	189	.86
Architectural worker	156	200	356	1.62
TOTAL	5,728	16,795	22,523	100.00

Source: Libya Ministry of Labor, Department of Immigration

Table I-14 (continued)

Egyptian Migrants to Libya in the Construction Industry
(1976-Private Contract)

Occupation/Activity	Egyptian Private Sector	Libyan Private Sector	Libyan Public Sector	Total	% Total
Architect	22	33	6	61	.20
Electrical Engineer	4	8	20	32	.11
Land Surveyor	-	8	-	8	.03
Draftsman	2	-	-	2	.01
Measurer	93	20	-	113	.37
Construction foreman	109	156	2	687	.95
Assistant Architect	-	19	9	28	.09
Electrician	178	916	82	1,236	4.09
Electrician for elevators	2	5	-	7	.02
Sanitary ware plumber	200	786	63	1,049	3.47
Electrician for bells and alarms	4	-	-	4	.01
Blacksmith	30	247	3	280	.93
Concrete worker	960	998	211	2,169	7.18
Glass fitter	-	45	-	45	.15
Porter	170	5,074	109	5,353	17.73
Builder (mason)	324	1,901	49	2,274	7.53
Whitewasher	1,054	3,211	150	4,415	14.62
Assistant whitewasher	16	10	-	26	.09
Painter	281	987	78	1,346	4.46
Assistant painter	-	1	-	1	.00
Carpenter for concrete forms	852	3,538	247	4,637	15.36
Assistant carpenter for concrete forms	-	6	1	7	.02
Metal worker for reinforced concrete	487	1,914	146	2,547	8.44
Asst. metal worker for reinforced concrete	-	5	-	5	.02
Carpenter for doors and windows (joiner)	47	383	18	448	1.48
Tile fitter	203	1,011	34	1,248	4.13
Assistant tile fitter	-	4	1	5	.02
Tile maker	-	9	-	9	.03
Marble worker	26	60	2	88	.29
Wood cutter	5	34	23	62	.21
Architectural worker	45	2,013	15	2,073	6.87
Insulation specialist	4	12	2	18	.06
Machine worker for carpenters	77	228	2	307	1.02
TOTAL	5,195	23,702	1,293	30,190	100.00

Source: Libya Ministry of Labor, Department of Immigration

is it possible to view the migration of Egyptians solely in terms of professionals. The profiles of migrants observed in the construction labor force is representative of fundamental transformations of the country's migration patterns, and these are likely to have critical effects on the nature of the internal labor force.

4.6 Alternative Estimates of Overall Construction Workers' Migration

Given these data, it is possible to develop at least a rough estimate of the total number of construction workers who have migrated. As noted, there are no reasonably current official statistics which provide this number and even for earlier years for which there are occupational distributions of emigrants, the data do not permit the precise identification of construction occupation. However, this is an instance in which is it better to have at least a rough estimation of the range in which the actual number falls, than to throw up one's hands in despair. If, for example, the number of construction workers who have migrated is in the range of, say, 25,000 to 30,000 per year, or 5% or 6% of the current construction labor force, then the emigration is not likely to be a major influence on the construction industry. But if the emigration is 25% or more of the labor force in construction, then the adjustments to such a change are of a size as to cause important disruptions in the sector.

Three indirect methods have been used to gain insight into the magnitude of the emigration of construction workers. The first is based on available government sources 1968-1973 and provides some comparable basis on which to evaluate the growth in immigration after 1973. The second method

uses data on migration to Libya, Kuwait, Saudi Arabia and Qatar to obtain estimates of the proportion of construction workers that migrate from Egypt. Applying these percentages to the estimates of total workers moving abroad according to 1976 census, we obtained estimates of overall migration of construction workers. The third method relies exclusively on Libyan and Egyptian data, drawing upon detailed information on migration by occupation within the construction sector. The number of construction workers with certain skills who left Egypt in 1973 is divided by the percentage of people with those skills migrating to Libya in 1974-76 of those who went to Libya to work in construction. Each method produces considerably different estimates. We will then compare our estimates with those of other analyses, and indicate possible sources of discrepancies.

Method 1: Official Migration Records

We estimate the size of migration of construction labor from the government's estimates of movement of painters, masons, and carpenters, which generate a very conservative estimate for 1968 to 1973. These are incorporated in a broader category of craftsmen. To obtain a more accurate view, we include some evidence from this broader category. Thus, using 80% of the number of craftsmen and industrial production workers leaving to work, we obtain an estimate of construction workers' migration during these years (1968-73). The results can be seen in Table I-15. This category incorporates the more restrictive definitions (i.e., painter, mason, electrician), but is more comprehensive and perhaps also more realistic. The table presents the percentage of construction workers to total migrants leaving to work between

Table I-15

Estimated Size of Construction Worker Migration

Year	# of Workers in Production & Industry				Estimated # Construction Workers	Total # people Leaving Egypt to Work			%
1968	9455	x	.8	=	7564,	7564	/	44272	=	17.1%
1969	8825	x	.8	=	7060,	7060	/	51823	=	13.6%
1970	11703	x	.8	=	9362,	9362	/	65900	=	14.2%
1971	13409	x	.8	=	10727,	10727	/	65877	=	16.3%
1972	6963	x	.8	=	5570,	5570	/	37814	=	14.7%
1973	24409	x	.8	=	19527,	19527	/	149357	=	13.1%

Estimated number of construction workers migrating in 1976, by tripling the number of migrants in 1973:

$$19527 \times 3 = 58581$$

Source: "The Migration of Population Across the Frontiers of the Arab Republic of Egypt", 1968-1972 quarterly, 1973 one volume. Published by CAPMAS.

1968 and 1973, as well as the absolute numbers. Note the relative stability of these figures. By arbitrarily tripling these estimates for 1973, we obtain a total for the flow of construction workers in 1976.

Method 2: Aggregate Migration to Arab Nations

The second method starts with information on the proportion of Egyptian emigrants going to Libya, Saudi Arabia, Kuwait, and other Arab nations. Libya receives by far the largest share of Egyptian migrants -- 55% to 60% according to one source.[23] Saudi Arabia draws the second largest share, 20% to 25%, while Kuwait is third at 8% to 12%. All other Arab nations combined draw about 8% to 11% of the total number of Egyptian migrants. On this basis, and for purposes of estimation, it will be assumed that Libya's share of total migrants ranges between 53% and 62%, Saudi Arabia's share between 18% and 28%, Kuwait's 6% to 14%, and other Arab countries' 5% to 13%.[24]

The next step is to utilize the occupationally disaggregated information on migration to Libya, Saudi Arabia, Kuwait, and other countries.

According to the Libyan Ministry of Labor, in the years 1974-1976, 65% to 69% of the Egyptians leaving to work in Libya under personal contracts were in construction.[25] The category "under personal contracts" is only a

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[23]Birks, Dr. J.S. and Dr. C.A. Sinclair, codirectors and principal researchers, "International Migration Project Case Study: Arab Republic of Egypt", International Migration Project, University of Durham, 1977.

[24]Using data given by the Egyptian Minister of Work and Training we have an alternate set of estimates for the percentage of Egyptian migrants going to different Arab countries. They are: Libya -- 37%; Saudi Arabia -- 37%; Kuwait -- 11%; United Arab Emirates -- 11%; Iraq -- 4%; and Qatar -- 1%. For purposes of estimation we used a small range of ± 2-3% for each of these given values. See Al-Ahram, Sept. 18, 1978.

[25]"The Statistical Report for Egyptian Workers with Personal Contracts to Work in Libya" for the years 1974, 1975 and 1976.

small subset of all Egyptian migrants; therefore, the 65% to 69% may be some-
what misleading with regard to their actual employment in Libya. The Libyan
Plan of Economic and Social Transformation, 1976-1980, indicates that of
all migrants entering Libya in 1975, 49.5% were in construction. Since Egyp-
tians are only a significant proportion (60%) of all migrants to Libya, the
49.5% figure is also potentially misleading. Therefore, we have chosen the
range of 50% to 70% as our estimate of the proportion of construction workers
in the Egyptian migration to Libya.

Kuwait is a rather clear-cut case. Ministry of Labor and Social Affairs
data for 1973 reveals that 52.8% of the Egyptians entering Kuwait in 1977
were in construction.[26] Since we are concerned with making an estimate for
1976, we chose 50-55% as a reasonable percentage of construction workers.

With Saudi Arabia we have no direct estimates of the percentage of
Egyptian migrants in construction. On the basis of spot estimates from
Egypt, it is possible to place the proportion of construction workers in
total migration into Saudi Arabia at around 30-35%, although Saudi govern-
ment sources provide lower figures for 1970-1973.

The range 35-45% as the proportion of construction workers to other
Middle East countries results from data available for two major countries,
Qatar and United Arab Emirates. A report of the Ministry of Labor of Qatar
indicates that 43% of the Egyptians working in Qatar under personal contracts
are in construction,[27] while the 1975 Census of the United Arab Emirates

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[26]"Report on Employment and Other Basic Features of Foreign Workers Entering
Kuwait in 1977" from the Kuwait Ministry of Labor and Social Affairs.

[27]"Account of the Gross Egyptian Labor on Personal Job Contracts Working in
the State of Qatar Classified by Profession -- 1976". Qatar Ministry of
Labor and Technical Training.

shows that 35.1% of the incoming migrants are in construction. These data provide a crude estimate.

Multiplying the percentage of Egyptians to each country by the corresponding percentage of construction workers to total migrants yields the proportion of construction workers to each country as a percentage of total Egyptian migration. Summing up these percentages for each country or group of countries results in an estimated percentage of total construction migration. We arrived at an estimate of 37 to 67 percent. Table I-16a reviews the calculations.[28]

As noted earlier, there is also a range of estimates of the total number of Egyptian workers abroad. The latest Egyptian census data estimates the total number of workers plus dependents at over 1.4 million. Based on this, a figure of one million would be a conservative estimate of the number of workers who have emigrated.[29] However, it can be argued that construction workers typically return to Egypt annually, whereas the estimate of total Egyptians abroad includes many who have emigrated permanently or are abroad on long-term contracts. If we estimate the number of people who return each year to be 60% of the total, then there are 600,000 emigrants per year. Applying the percentages indicating the share of construction workers yields numbers of construction workers migrating each year which range from 222,000 to 402,000.

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[28]Using the percentages calculated from the data provided in Al-Ahram in place of that provided by the International Migration Project (Durham) for the proportion of total Egyptian migration, we arrive at an estimated proportion of construction to total migration of 37-58%. This agrees remarkably well with the other calculation. See Table I-16b for this alternative estimate.

[29]A recent statement by the Egyptian Minister of Work and Training indicates that there are currently about 1,365,000 Egyptian workers in 6 Arab countries. See Al-Ahram, September 18, 1978.

Table I-16a

Estimation of the Share of Construction Workers in Egyptian Migration

	Proportion of Total Egyptian Emigration (%)	Proportion of Construction Workers in Egyptian Emigration (%)	Estimated Proportion of Construction in Total Emigration (%)
Libya	53 - 62	50 - 70	27 - 43
Saudi Arabia	18 - 28	30 - 35	5 - 10
Kuwait	6 - 14	50 - 55	3 - 8
Other	5 - 13	35 - 45	2 - 6
			37 - 67

Assuming a flow of 600,000 migrants per year:

.37 x 600,000 = 222,000

.67 x 600,000 = 402,000

<u>222,000 - 402,000 construction migrants each year</u>

Table I-16b

Alternative Estimation of the Share of Construction Workers in Egyptian Migration

	Proportion of Total Egyptian Emigration (%)	Proportion of Construction Workers in Egyptian Emigration (%)	Estimated Proportion of Construction in Total Emigration (%)
Libya	35-40	50-70	18-28
Saudi Arabia	35-40	30-35	11-14
Kuwait	8-14	50-55	4- 8
UAE	8-14	32-38	3- 5
Other	3- 7	35-45	1- 3

Assuming a flow of 600,000 migrants per year:

.37 x 600,000 = 222,000

.58 x 600,000 = 348,000

222,000 - 348,000 construction migrants each year

Table I-16 (continued)

Sources:

Proportion of Total Egyptian Migration:

Table I-16a: Birks, Dr. J.S. and Dr. C.A. Sinclair, codirectors and principal researchers, "International Migration Project Country Case Study: Arab Republic of Egypt", International Migration Project, University of Durham, 1977.

Table I-16b: Al-Ahram, September 18, 1978.

Percentage in Construction:

Libya - The Statistical Report for Egyptian Workers with Personal Contracts to Work in Libya, 1974, 1975, and 1976; and The Plan of Economic and Social Transformation, 1976-1980.

Kuwait - "Report on Employment and Other Basic Features of Foreign Workers Entering Kuwait in 1977" from the Kuwait Ministry of Labor and Social Affairs.

Saudi Arabia - Saudi Statistical Yearbook, 1970-1973.

Qatar - "Account of the Gross Egyptian Labor on Personal Job Contracts Working in the State of Qatar Classified by Profession - 1976", Qatar Ministry of Labor and Technical Training.

United Arab Emirates - 1975 Census.

Method 3:   Inferences from Migration to Libya

The third method of estimating total migration of construction workers relies on the extrapolation of proportions of particular construction occupations in total construction workers emigrating to Libya, for which detailed information is available. The proportions of (a) masons and carpenters, (b) electricians, and (c) painters as a share of the total number of construction workers going to Libya are shown in rows 1, 2, and 3 in Table I-17 for the years 1974 to 1976. The actual number of all such workers emigrating from Egypt in 1974 is shown in row 4. The results of applying the ends of the ranges shown in rows 1, 2, and 3 to row 4 are shown in row 5 as the estimated numbers of construction workers leaving Egypt in 1973. These estimates range from 42,000 to 194,000. However, the large increases in emigration occurred only after 1973. If the number of construction workers emigrating tripled from 1973 to, say, 1976, the total abroad in that year would be between 126,000 and 583,000.

In summary, we have three estimates of the number of construction workers leaving Egypt. The first yields an estimate of 58,000-59,000. The second and third generate markedly higher figures, 222,000-402,000 and 126,000-583,000, respectively. If we disaggregate Method 3 into its three components, we have the following estimates: 126-208 thousand for painters, 143-209 thousand for masons and carpenters, and 342-583 thousand for electricians. On the basis of the three estimates, Methods 1, 2, and 3, and the disaggregation from method 3, a plausible mid-range estimate, based on the most reliable sources, is 200-250 thousand construction workers migrating

Table I-17

Estimates of Construction Migration Based on Particular Occupations

	Masons and Carpenters	Electricians	Painters
(1) 1974	12.32%	2.42%	3.16%
(2) 1975	13.20%	3.14%	4.10%
(3) 1976	9.01%	4.13%	4.46%

Number of Workers in Particular Construction Occupations Emigrating in 1973

	Masons and Carpenters	Electricians	Painters
(4)	6,289	4,705	1,874

Estimated Number of Construction Workers Emigrating in 1973

	Masons and Carpenters	Electricians	Painters
(5)	47,643 - 69,800	113,922 - 194,421	42,017 - 59,303

Estimated Number of Construction Workers Emigrating in 1976

	Masons and Carpenters	Electricians	Painters
(6)	142,949 - 209,400	341,766 - 583,263	126,051 - 207,909

Sources: For Rows 1, 2 and 3 -- The Statistical Report for Egyptian Workers with Personal Contracts to Work in Libya, for the years 1974, 1975 and 1976.
For Row 4 -- CAPMAS, The Migration of Population Across the Frontiers of the Arab Republic of Egypt, 1973. Cairo, 1974.

to other Arab countries for 1976.

It is useful to interpret these estimates of the emigration of construction workers who have had to be replaced in that sector. Moreover, it is likely that the emigration is more skill intensive than the domestic labor force. To the extent possible, it would be rational for the receiving countries to import workers with higher level skills from Egypt and supply the lower level skills through migrants from lower wage areas such as North Yemen. Table I-6 above demonstrates that domestic employment in construction has grown substantially since 1973, but its growth has occurred by adding workers not previously employed in construction. These workers in turn have had to acquire the higher level skills lost through migration. The effects of the migration, therefore, are understated by simply comparing the number of workers who have migrated with the total labor force in the construction sector. That labor force includes unskilled as well as skilled workers, but the former are relatively easily replaced and the latter are not. On the other hand, there is a higher proportion of skilled workers among emigrants than in the labor force in construction.

Table I-18 indicates the percentage of employment in construction that has migrated, using the high estimate of construction employment (Table I-7 above) and the different estimates of construction worker migration (Table I-20). The information in Table I-18 therefore lends credence to the hypothesis that employment in construction is drawing from other sectors, essentially "replacing" those that are temporarily lost to the system through migration.

Table I-18

Construction Migration as a Proportion
of the Construction Workforce in Egypt in 1976

Source	Stocks of Construction Migrants in Thousands	Construction Workforce in Egypt in Thousands (3)	Proportion of Migrants to Workforce (%)
IMF[1]	133-235	434	31-54
Durham Report (1)	140-288[2]	434	32-66
Durham Report (2)	228-402[2]	434	53-93
This Report	380-670	434	88-154

Flows of Construction Migrants:

This Report	200-250	434	46-58

Sources:

(1) For the calculation of construction workers see Table I-20. The original source is Gerakis, Andreas S. and S. Thavanithy, "Wave of Middle East Migration Raises Questions of Policy in Many Countries", IMF Survey, September 4, 1978, p. 261.

(2) For the calculations of construction workers see Table I-20. The original source for the calculations is Birks, Dr. J.S. and Dr. C.A. Sinclair, codirectors and principal researchers, International Migration Project Country Case Study: Arab Republic of Egypt, International Migration Project, University of Durham, 1977.

(3) See Table I-7.

4.7 Comparison of Estimates by Other Investigations

To conclude our discussion of alternative estimates of construction workers' migration, it is useful to compare the above assessments with those presented by other analyses. The distinction between stocks and flows is important here, both for overall labor abroad, and for the construction component. Table I-19 summarizes the stock and flow estimates of four sources for Egyptians working abroad. The lowest estimate for 1976 is 350,000 and the highest is 1 million. Table I-20 then presents the estimates of Egyptian construction workers abroad for 1975-1977. Against this background, we can now turn to an examination of the implications of such migration for the construction sector, and for the Egyptian system as a whole.

Table I-19

Estimates of Egyptians Working in the Middle East

Stocks

IMF	350 thousand in 1977
Durham Report (1)[1]	369-430 thousand in 1975-76
Durham Report (2)[1]	600 thousand in 1976
This Report	1000 thousand in 1976

Flows

This Report[2]	600 thousand in 1976

[1] The report from the University of Durham contains two estimates of the number of Egyptians working in the Middle East. The larger is from the Egyptian government while the smaller is from the governments of the countries receiving the migrants.

[2] Our flow is predicated on a 60% annual turnover rate.

Sources: See Table I-18.

Table I-20

Estimates for Egyptian Construction Workers in the Middle East
Using 38%-67% as the Estimated Proportion of Construction Workers

Stocks

Source[1]	Estimates of Construction Workers in Thousands
IMF	133-235
Durham Report (1)	140-228
Durham Report (2)	228-402
This Report	380-670

Flows

This Report	
Method #1	58- 59
Method #2	228-402
Method #3	126-208
	143-209
	342-583
Midrange	200-250

[1]See Table I-19 for estimates of total Egyptian migrants working abroad, from which these calculations were made.

Sources: See Table I-18.

PART II

CONSTRUCTION ACTIVITY IN THE EGYPTIAN ECONOMY

1. The Construction Sector

The construction sector is a small one in terms of its relative con-

tribution to the gross national product and employment. However, it war-

rants special attention because of the critical role which it plays in a

developing country, such as Egypt, which is attempting to accelerate its

economic growth. The construction sector is estimated to produce 7.7% of

the gross national product and, as noted in Part I above, to employ only

about 3-5% of the labor force. However, the role played by the construc-

tion sector in Egypt's development cannot be measured in such terms, but

rather requires an assessment of its contribution to investment and, there-

fore, to the process of economic growth. In addition, in order to under-

stand its influence -- and, by extension, the impact of changes in its labor

force -- the interrelations of construction with the other producing sectors

must be appreciated.

The construction sector's only deliveries to satisfy final demands are

to investment for which the output of the construction sector represents

the most important single component. The investment table for the 1970/71

Plan, which is summarized in Table II-1, estimates the total input of con-

struction as equal to 43.1% of total investment. This means that an in-

crease in investment of L.E. 1000 requires a construction component, on the

average, of L.E. 431. As can be seen in Table II-1, however, there is

Table II-1

Construction Component of Investment

1970 - 1971

Selected Sectors	Construction Component
High Dam	0.892
Crude Oil & Products	0.330
Chemical Industries	0.338
Food Processing	0.351
Non-metallic Products	0.325
Basic Metallic	0.532
Transport & Communication	0.425
Housing	0.990
Public Utilities	0.526
Health Services	0.587
Services	0.528
Average for all sectors	0.431

Source: Table 10, Statistical Appendix.

considerable variation in the construction input requirements for investment, with the ratios ranging from 32.5% for non-metallic products to 99% for housing. For the high Dam, the basic metals and public utilities sectors, and for a variety of services, the ratio was above 50%. These numbers for Egypt correspond roughly with the experience of other countries.

In addition to its relatively large contribution to investment, the construction component typically has a long gestation period compared to other plant and equipment inputs. Thus, the timing of construction targets in any period will affect the completion of new investment projects one, two, three or more years into the future. As a result of these features, construction has a critical function in the growth process and any bottlenecks which may exist in this sector can slow down the entire growth process.

The interrelations of the construction sector in providing intermediate inputs to other sectors and receiving those inputs from other sectors are shown in Table II-2, which contains the input-output coefficient matrix for Egypt for 1976. The convention adopted for the preparation of this table is that the construction industry is a processing industry, analogous to the food processing industry rather than merely a service sector. Thus, in order to produce its output, materials and services must be delivered to the construction sector rather than directly to final demand, which, in this case, is overwhelmingly investment. This convention is particularly useful for the present purposes of identifying the interactions of the construction sector with the rest of the economy.

The construction row indicates the amounts supplied by that sector to

Table II-2

Input-Output Coefficient Matrix, Egypt, 1976

	Staple Food	Non-Staple Food	Cotton	Other Agriculture	Food Processing	Textiles
Staple Food	.102576	0.0	0.0	0.0	.118021	0.0
Non-Staple Food	.003684	.029382	.002004	.012743	.230437	.001191
Cotton	0.0	0.0	.001715	0.0	.001011	.082594
Other Agriculture	.119975	.222437	.042223	.004607	.003914	.038947
Food Processing	0.0	.031406	0.0	0.0	.092839	.004262
Textiles	.004036	.000041	.014034	.000045	.000929	.350952
Other Industries	.020555	.000129	.021404	.000472	.001016	.015339
Construction	0.0	.000923	.000578	0.0	.000375	.002007
Crude Oil and Products	.027980	.024128	.016660	.004324	.002246	.013631
Transport and Communication	.000461	.000320	.000910	.000064	.000358	.002355
Housing	.000070	.000009	.000049	.000004	.000659	.000737
Other Services	.006377	.012993	.032828	.001448	.020595	.038268

Table II-2 (cont.)

Input-Output Coefficient Matrix, Egypt, 1976

	Other Industries	Construction	Crude Oil & Products	Transport & Communication	Housing	Other Services
Staple Food	0.0	0.0	0.0	.002359	0.0	.003266
Non-Staple Food	.000280	0.0	0.0	.001068	0.0	.005650
Cotton	.000004	0.0	0.0	0.0	0.0	0.0
Other Agriculture	.001339	0.0	0.0	.001071	0.0	.000089
Food Processing	.006903	.0.0	0.0	.003767	.000060	.029896
Textiles	.000941	.001754	.000366	.000454	.000181	.017014
Other Industries	.118139	.017751	.014791	.014761	.001139	.004637
Construction	.000712	.000903	.003981	.016021	.039899	.004637
Crude Oil and Products	.007929	.048213	.217502	.061291	0.0	.025919
Transport and Communication	.000490	.003406	.000348	.003655	.000049	.010054
Housing	.000290	.001252	.000688	.000609	.0.0	.002025
Other Services	.007370	.527351	.020123	.045724	.015010	.156777

other sectors as intermediate inputs, per unit of output of each of the
other sectors. It is apparent that these amounts are relatively small.
Only for the housing and the transport and communications sectors, for which
the construction sector supplies a modest amount of current inputs, mainly
for maintenance, are the coefficients as much as 1%. This means that the
output and capacity of the construction sector will not constrain the cur-
rent output of any other sector, as, for example, the output of the electric
power sector certainly constrains the current levels of output of most other
sectors.

The construction column indicates the inputs required from the other
sectors per unit of output of construction. The aggregation is too gross
to provide much enlightenment, however the dependence of construction on a
variety of other industries is also indicated. Table II-3 provides much
more detail with respect to the structure of inputs into construction.
In this table the importance of the mining and quarrying, wood products,
non-metallic products, and basic metallic products sectors in supplying
inputs for construction can be clearly seen. Table II-3 also suggests
that, while there may have been some important changes in technologies
used in construction, as revealed by relative changes in input ratios, in
absolute magnitude, the changes were small.

An additional characteristic of the construction sector as revealed
by Table II-3 is that the dependence on imported inputs has been relatively
slight. While too much weight should not be given to this indication as
it often reflects the levels of domestic demand in relation to domestic ca-
pacity, rather than a technological dependence, there are special reasons

Table II-3

Development of the Structure of Inputs to the Construction Sector

1954 - 1973

Years / Sectors	1954	1963/64	1966/67	1967/68	1970/71	1973
3- Mining & Quarrying.						
Lime	0.0048	0.0046	0.0031	0.0034	0.0030	0.0035
Gravel	0.0031	0.0309	0.0210	0.0232	0.0201	0.0242
Sand	0.0195	0.0194	0.0135	0.0146	0.0130	0.0151
Rubcel Stones	0.0019	0.0017	0.0012	0.0013	0.0012	0.0014
Total	0.0573	0.0566	0.0393	0.0425	0.0373	0.0442
10- Wood & Wood Products.						
Wood	0.0008	0.0008	0.0007	0.0011	0.0012	0.0014
Wood Products	0.0415	0.0412	0.0577	0.0571	0.0663	0.0728
Sleepers	0.0015	0.0011	0.0016	0.0030	0.0014	0.0022
Total	0.0438	0.0431	0.0600	0.0612	0.0689	0.0764
15- Chemicals.						
Points	0.0054	0.0019	0.0028	0.0032	0.0024	0.0027
Explosives	0.0013	0.0025	0.0016	0.0023	0.0017	0.0020
Total	0.0067	0.0044	0.0044	0.0055	0.0041	0.0047
16- Petrolium Products & Coal						
Benzine	0.0024	0.0025	0.0018	0.0021	0.0016	0.0020
Kerosine	0.0002	0.0002	0.0001	0.0001	0.0001	0.0002
Diesel	0.0023	0.0024	0.0017	0.0020	0.0016	0.0020
Mazote	0.0014	0.0015	0.0010	0.0012	0.0010	0.0014
Solar	--	--	--	--	--	--
Lubricants	--	--	--	--	--	--
Other Petrolium Products	0.0043	0.0047	0.0032	0.0037	0.0029	--
Asphalt	0.0074	0.0069	0.0048	0.0052	0.0044	--
Total	0.0180	0.0182	0.0126	0.0143	0.0116	0.0056

Table II-3 (cont.)

Development of the Structure of Inputs to the Construction Sector

1954 - 1973

Years / Sectors	1954	1963/64	1966/67	1967/68	1970/71	1973
17- Non-metallic Products						
Cement	0.0516	0.0512	0.0712	0.0718	0.0843	0.0923
Bricks	0.0296	0.0295	0.0205	0.0221	0.0191	0.0239
Sanitary tools & Equip.	0.0125	0.0170	0.0163	0.0215	0.0163	0.0214
Gypsium	0.0095	0.0094	0.0065	0.0071	0.0061	0.0074
Glass	0.0027	0.0028	0.0020	0.0021	0.0016	0.0022
Tiles	0.0190	0.0189	0.0132	0.0142	0.0123	0.0148
Marble	0.0013	0.0014	0.0012	0.0014	0.0012	0.0015
Concrete pipes	0.0033	0.0037	0.0026	0.0028	0.0034	0.0020
Glass ware	0.0026	0.0024	0.0022	0.0024	0.0020	0.0020
Total	0.1321	0.1363	0.1357	0.1454	0.1453	0.1684
18- Basic metallic						
Reinforcing bars	0.0702	0.0635	0.019	0.0939	0.0896	0.0848
Iron pipes	0.0004	0.0001	0.0004	0.0005	0.0006	0.0008
Iron ware	0.0161	0.0184	0.0101	0.0107	0.0079	0.0110
Cinders	0.0039	0.0044	0.0017	0.0027	0.0016	0.0036
Iron sheets	0.0015	0.0015	0.0011	0.0011	0.0010	0.0012
Pig iron pipes	0.0016	0.0037	0.0039	0.0046	0.0037	0.0034
Rails	0.0006	0.0010	0.0026	0.0032	0.0026	0.0034
Rails products	0.0005	0.0006	0.0009	0.0016	0.0017	0.0018
Total	0.0948	0.0932	0.1126	0.1183	0.1087	0.1100
19- Metallic Products						
Cable pipes	0.0001	0.0003	0.0003	0.0004	0.0003	0.0003
Total	0.0001	0.0003	0.0003	0.0004	0.0003	0.0003
21- Electric Machinery & Repair						
Electric tools	0.0060	0.0069	0.0059	0.0070	0.0053	0.0072
Total	0.0060	0.0069	0.0059	0.0070	0.0053	0.0072

Table II-3 (cont.)

Development of the Structure of Inputs to the Construction Sector

Sectors \ Years	1954	1963/64	1966/67	1967/68	1970/71	1973
24- Electricity	0.0005	0.0005	0.0004	0.0005	0.0003	0.0004
Total	0.0005	0.0005	0.0004	0.0005	0.0003	0.0004
26- Transport & Communication	0.0165	0.0161	0.0112	0.0121	0.0104	0.0162
Total	0.0165	0.0161	0.0112	0.0121	0.0104	0.0162
27- Services Service input (intermediate) Others	0.0496 0.0028	0.0536 0.0041	0.0332 0.0027	0.0359 0.0020	0.0319 0.0020	0.0433 0.0038
Total	0.0524	0.0577	0.0359	0.0379	0.0339	0.0471
Total Inputs from Domestic Production Total Inputs from Imports	0.4283 0.1114	0.4333 0.1013	0.4183 0.0807	0.4451 0.0702	0.4261 0.0990	0.4805 0.1318
Ratio of Total Inputs to Production Value Added	0.5396 0.4604	0.5346 0.4654	0.4990 0.5010	0.5153 0.4847	0.5251 0.4749	0.6123 0.3877
Total	1.0	1.0	1.0	1.0	1.0	1.0

Sources: Ministry of Planning, calculated from Input-Output tables for the years 1954, 1963/64, 1966/67, 1967/68, 1970/71 and prelininaty 1973 I/O Table.

in the Egyptian case that might make this plausible.[1]

The purpose of these observations is not to present a full description of the construction sector in Egypt, but to indicate its special features so that the impact of changes in the labor force can be understood. In short, therefore, the output of the construction industry is mainly an input to investment. The component of foreign or of imported inputs has been relatively small. In general, there appear to have been comparatively few changes in the characteristics of the construction industry for the years 1954-1973.

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[1] Nazli Choucri and Richard S. Eckaus. "Interactions of Economic and Political Change: The Egyptian Case". (M.I.T.: Technology Adaptation Program, 1978).

2.   The Effects of the Migration of Labor on the Construction Sector

The preceding section described the significance of the construction sector in Egypt. It thus indicated the importance of assessing the role of labor emigration as a constraint on the expansion of construction activity in Egypt. At this point we attempt to identify the particular effects of the emigration of Egyptian labor on the construction sector. Toward this end, it is necessary to consider the possible role of other constraints: demand, and the supply of materials and equipment needed for construction. An examination of these constraints will be undertaken first, then the effects of labor emigration itself on the construction sector will be examined. The limited data available forestall any quantitative estimates of the effects of labor movements. Nonetheless, some definitive qualitative statements are possible.

2.1 Demand Constraints on the Construction Sector

The determination as to whether demand is the important constraint in the construction sector requires a comparison of the sector's capacity with its actual output levels. But capacity determination in any sector, and particularly in construction, is a difficult matter at best. The relation between the rate of change in costs and the rate of expansion of output is central to the definition of sectoral capacity. If there are inputs which can be increased only with relatively high cost, so that costs would rise steeply with output, then we speak loosely about the availability of these inputs as a capacity constraint.

Since definitive measures of capacity are likely to be illusory, and

for the purposes of the present argument are not essential, it is convenient to fall back on the more conventional approach of estimating the extent of demand constraint by comparing current with some previous peak output level. It should be noted that this test reveals that demand is not a constraint only if output is found to be rising above previous peak levels. This would demonstrate that whatever the supply constraints, including labor availability, the growth in demand overcame them. However, if output is found to fall below previous peaks, that would not necessarily imply that demand was inadequate to maintain full use of input capacities. In this case, the constraint might be only the supply side.

In addition, interpretation of construction output data involves more than the ordinary index number problems, including that of deflating nominal values to reduce the possibility of being misled by price inflation. There is a greater heterogeneity in the composition of construction output than exists in most other sectors. Except for speculative housing or office building construction, of which there is some, but relatively little, in Egypt, most construction is "made-to-order" and most of it, to some degree, has unique qualities. Thus, the price index for the construction sector is often made up as a composite of input price indices rather than as an index of output prices.

The construction of this type of index has been undertaken for this study and the resulting index used to deflate the gross construction output data at current prices. The data are presented in Table 11 of the Appendix. The deflated construction output series is shown in Figure II-1. It is clear that construction output, in real terms, has grown substantially,

FIGURE II-I CONSTRUCTION OUTPUT AT CONSTANT 1959/60 PRICES
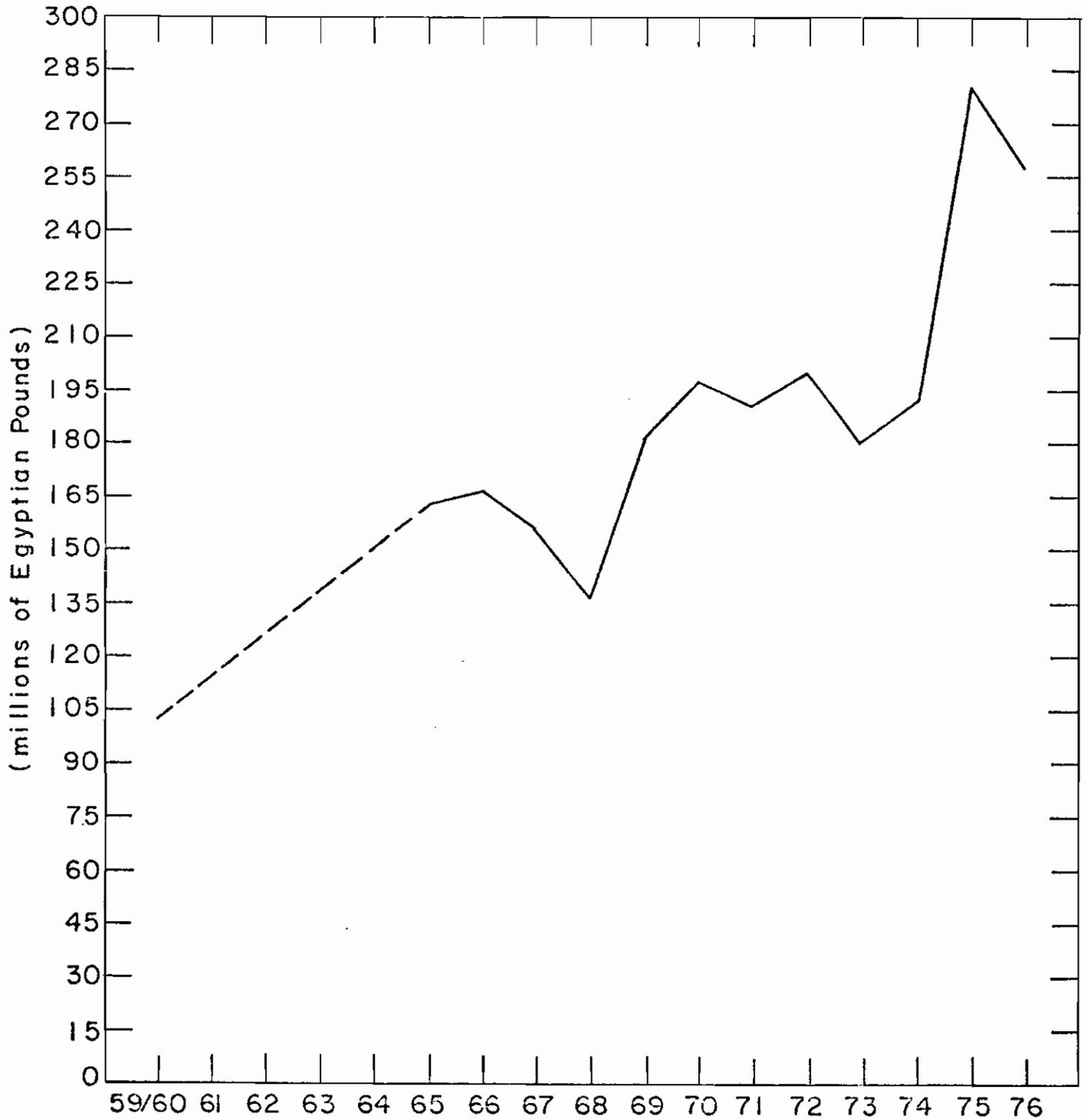
though not monotonically, over the period during which emigration has also grown. Output appears to have fallen from 1972 to 1973, presumably in association with the 1973 war. However, it recovered quickly and by 1975 reached new heights. The decline in 1976 may reflect the reduction of government investment plans in that year, which was in reaction to severe foreign exchange bottlenecks. Overall, however, because output is rising, our evidence provides a strong test which rejects demand inadequacy as a constraint on construction output.

While demand may not have constrained output, the increases in demand observed may well be responsible for the increases in prices of construction output, which, in turn, may have contributed to the increase in input prices, of labor as well as materials. This would happen even in the absence of labor emigration unless the labor supply was perfectly elastic at the going wage, a characteristic which is prima facie unlikely.

2.2 Supply Constraints on the Construction Sector

Turning to possible supply side constraints on the construction industry, other than labor, the first issue is the possibility that inadequate capital in the construction industry itself may be constraining more than labor availability. As has been noted, the role of equipment in the construction sector is relatively small. Moreover, casual empiricism suggests the existence of a substantial range of alternative combinations of inputs which can produce essentially the same output, although which part of that range reflects physically or economically efficient alternatives will not be revealed. In principle, equipment shortages can be made up by imports,

and these imports would be available to Egypt without the demand forcing
up prices, since Egypt is such a small part of the world market. With some
exceptions, such as heavy earthmoving equipment, the machinery used in con-
struction is not highly sophisticated and does not require long lead times
for its building. Indeed, it can often be ordered "off the shelf". In the
critical period since 1973-74, the world-wide recession, particularly in
investment activity, would tend to make capital equipment acquisition rela-
tively short in lead times. It is only in those period when capital imports
have had to be constrained for lack of foreign exchange and for those pro-
jects for which labor-equipment substitution is slow and/or costly that
equipment availability is likely to have been an important constraint on
the expansion of construction activity.

Also on the supply side, limitations in the supplies of current mate-
rial inputs can, of course, also create bottlenecks. The supply of steel,
cement, and other important construction materials has both domestic and
foreign sources. The domestic supply is subject to capacity constraints,
but the foreign supply must be highly elastic at prevailing international
prices, although, again, it may be constrained by foreign exchange scarcity.

The statistical evidence indicates an increased degree of reliance
on imports, which has made foreign exchange availabilities of growing im-
portance in determining material supplies. For example, as much as a third
of Egypt's cement production was exported as recently as 1971. But, by 1976,
Egypt had become a large net importer, drawing almost 30 percent of total
cement from imports and, according to official plan documents, there was,
even so, an absolute shortage of cement in that year, presumably in comparison

to requirements for meeting investment targets. It is possible that there is some smuggling of cement out of Egypt due to the relatively low price at which it is officially available. This would aggravate any supply constraint.

There has been a roughly similar pattern in the supply of steel reinforcing bars. Imports of such bars were about a third of total supply in 1971 but were more than half of availabilities in 1976, according to some official sources. The supply of red bricks, widely used in a variety of construction applications, comes only from domestic production. According to Ministry of Planning data, that production peaked in 1964 and in 1974 was only two-thirds of that peak, in spite of the large increase in overall construction output.

The most revealing indicators of supply constraints in construction materials, however, are their prices. The prices of the most important construction materials in Egypt are subject to official controls; however, there is an unofficial market for such materials, into which some part of the available supplies are leaked and which clears marginal demands. As Table II-4 indicates, official prices for cement increased by 60% from around L.E. 11 per ton 1973 to L.E. 18 in mid-July 1977,[2] while black market prices increased around four-fold, from L.E. 21 in 1973 to L.E. 85 in June 1978. The gap between official and black market cement prices appears to have been widening over time.

The official prices for steel reinforcing bars have also been raised in the last half-dozen years, but again, not sufficiently rapidly to prevent

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[2] In mid-July 1977, official prices increased to L.E. 18.

Table II-4

Official & Market Prices for Cement

(LE per ton)

Year	Official Prices	Market Prices
1973	11	18 - 25
1974	12	24 - 40
1975	14	40 - 55
1976	14	45 - 60
1977	18	32 - 55
1978 (mid)	18	75 - 90

Source: For official prices, Ministry of Planning, Department of Housing and Construction. The official price includes cost of production + excise duties + price difference. Black market prices are from interviews with private contractors.

increases in black market prices. ₎This is shown in Table II-5.

The interpretation of the significance of the increases in black market prices of construction materials is subject to several important quali-fications. First, the existence of black market prices for construction materials does not necessarily indicate growing relative scarcity of such materials. They may only indicate that the market does not clear at the official prices. Moreover, even a relative increase in the black market prices may not imply growing scarcities, but rather changes in the propor-tions of the total supply of construction materials in relation to demands which are distributed through unofficial channels. However, casual empiri-cism suggests no substantial change in distribution practices in the period considered.

Second, the increases in these prices must be compared with the gene-ral rate of price increase of intermediate goods prices in the Egyptian eco-nomy in order to determine if there has been a change in relative scarcities. Unfortunately, there is no reliable index of intermediate goods prices, or wholesale prices, which permits such a comparison. The price information which is available does suggest that the increase in the black market prices for cement in the period from 1973 to 1977 is substantially above the general rate of increase in prices in the Egyptian economy. However, that does not appear to be so clearly the case for steel reinforcing bars.

Third, the black market prices of construction materials should not be interpreted as the "shadow prices" which reflect their real relative scarcities. They only reflect demands and supplies for inputs which are not cleared at the official prices. Since in this unofficial activity the

Table II-5

Official & Market Prices for Reinforcing Bars

(LE per ton)

Year	Official Prices	Market Prices
1972	100	160 - 180
1973	100	170 - 200
1974	120	170 - 200
1975	125	180 - 210
1976	150	180 - 190
1977	150	200 - 220
1978	170	230 - 270

Sources: Official prices are from the Department of Industry, Ministry of Planning. Official prices include cost of production + price difference. Black market prices are from interviews with private contractors.

prices of material inputs are higher than the official market prices, they create a lesser incentive to substitute against labor than do official material prices. The magnitude and, therefore, the significance of these relative incentives cannot be known. For example, it has been claimed that the black market for cement is quite widespread and that the prices on that market influence the use of cement delivered under the official quotas as well. But the extent and influences of these practices have not been measured and cannot be assessed.

The preceding discussion, while insufficiently exact, due to data inadequacies, to permit unqualified conclusions, suggests that neither demand constraints nor equipment scarcities have been constraints on construction output. However, the scarcities of material, as well as the increases in demand, have probably contributed to the increases in prices of both the output of the construction sector itself and of construction materials. It will be difficult to disentangle from these effects those influences which are due to the emigration of construction workers. But it is possible to determine whether that migration has tended to reinforce or offset other influences.

Recall that in Part I we presented rough estimates of the number of construction workers who have migrated. We used three procedures to estimate the number of construction workers leaving Egypt. Using each approach for 1976, we calculated the number to range from 58,000 to 583,000, with the 200-250 thousand region favored as an estimate because it overlaps most of the calculations. Such a number of construction migrants would amount to 68% to 85% of the total construction employment that year if one uses

the lower figure of construction employment, 293,000. If one uses the
higher figure, 434,000, the proportion becomes 46% to 58%. In either case,
it is a substantial segment of the construction workforce.

2.3 Wage Rates

In principle, another way of assessing the impact of the emigration
of construction labor is through the effects on wages. Yet, again, these
effects cannot be isolated from other influences. In the same period during
which emigration has increased rapidly, so has the domestic output of con-
struction in Egypt and, thus, the derived demand for construction labor.
Table I-10 provided estimates of the changes in wages of various types of
construction workers between 1970 and 1977. In that period, in most of the
skills and occupations, the increases range between three-fold and four-
fold or more, while output was increasing by, say, fifty percent. The sharp-
est increases took place after 1973, when emigration also jumped most sharp-
ly. However, that is also the period when domestic construction output
grew most rapidly.

It should be recalled that the above level of wage rates per day are
only an approximation of the reality of wage payments. As noted in Part I,
the system of labor contracts (oral) in the construction activities does
not fix wage or remuneration per day or per week. The average fixed daily
wage applies only to some casual work like repair or to some small volume
of work that does not require the accounting of the volume of production.
Table I-11 revealed how the average daily wage in Table I-10 is calculated accor-
ding to the "tariha" norm.

Table II-6

Construction Labor Requirements for a Volume of Construction Output
Equal to 1,000,000 LE

Type of Work	General Construction # of Workers	Housing # of Workers	Type of Skills Aver.	Mid.	High
1) Building	56	73	50%	30%	20%
2) Reinforcing Concrete					
A - Reinforcing Blacksmith	32	32	40%	30%	30%
B - Reinforcing Carpentering	60	58	40%	30%	30%
C - Concrete Work	110	104	75%	25%	-
3) Sanitary Work	29	73	50%	35%	15%
4) Whitewashing & Painting					
A - Whitewashing	76	95	50%	25%	25%
B - Painting	43	14	50%	25%	25%
5) Blacksmith & Carpentering	63	66	35%	35%	30%
6) Electricity Work	21	8	55%	25%	20%
TOTAL	490	523			

Source: Engineer Hamed Abd-El-Megid Elwakil, "Research on Technical Training in Building and Construction", First Conference on Training in Building and Construction (Training Strategy), Cairo, December 18-20, 1976, p. 4.

Table II-7

Index of Labor Cost in Construction

1970 - 1977

Year	General Construction	Housing
1970	100	100
1971	115	116
1972	132	135
1973	153	157
1974	215	223
1975	301	318
1976	376	404
1977	473	511

Source: The years 1970, 1973, 1975 and 1977 were calculated from actual data on wages in construction in Table I-10. The years 1971, 1972, 1974 and 1976 were interpolated on the assumption of constant rates of growth in the interim periods.

In order to determine somewhat more precise the real increase in construction average wage rate, an index was constructed of construction wages between 1970 and 1977. For this purpose, wage rates were used for nine types of construction skills. These are: 1) builders (brick layers), 2) reinforcing concrete blacksmith, 3) reinforcing concrete carpenter, 4) concrete work, 5) sanitary work, 6) white washing, 7) painting, 8) floor and window carpentry, and 9) electricity work.[3] From the average wage rates of these workers, a weighted index number of money wage rates for construction labor was prepared. The weights given to each of these types of workers in the index are as follows: 1) 11.5%, 2) 6.5%, 3) 12.2%, 4) 22.4%, 5) 5.9%, 6) 18.2%, 7) 2.7%, 8) 12.6%, 9) 1.5%. These weights represent the contribution of different types of workers in general construction. The weights of the same types of skill in housing construction are: 1) 14%, 2) 6.1%, 3) 11.1%, 4) 19.8%, 5) 14%, 6) 18.2%, 7) 2.7%, 8) 12.6%, 9) 1.5%.[4] The resulting indices of labor costs in construction are shown in Table II-7.

These index numbers indicate that wage rates in general construction increased by 373% between 1970 and 1977 at an annual rate of growth of 22%. They confirm previous impressions that the sharp increases took place after 1973 where annual rate of growth was around 28%, while before 1973 the annual rate of growth was 14%. The labor cost in housing increased by around 411% at an annual rate of growth of 23%. The annual rate of growth after 1973 was 30%, while it was 15% before that date.

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[3] The average money wage rate for these types of workers is found in Table I-11 in the text.

[4] The weights in both cases were taken from Table II-6, which describes the requirements from different types of skills required to carry out a volume of construction work of one million L.E.

Recourse to Table I-7 reveals, that while wages were rising, so was employment in construction. Thus, the supply of labor to the construction sector, while not perfectly elastic, clearly has been responsive to the wage rate.

2.4 Labor in the Construction Industry

One of the determinants of the elasticity of labor supply to construction is on the level of unemployment in the economy. However, there is controversy over the amount and character of both the open and disguised unemployment in the Egyptian economy which could potentially provide an elastic supply of labor to construction. Much of the disguised unemployment is believed to be in the government administrative sector and public enterprise, as well as in private agriculture, and, classically, in the private urban service sector. But it is only the latter which would release its disguised unemployed to the construction sector without significant wage increases. Government employment offers special privileges of security and pensions which are not easily sacrificed even for higher wages in a private sector. Presumably the latter are regarded as more risky and, therefore, with a lower presented discounted value than future earnings and the government sector.

The relative riskiness with which employment in the construction sector is regarded must offset to a considerable degree the higher earnings of that sector. In agriculture, surplus labor which exists is, to a considerable extent, seasonal and located primarily among members of the family other than the adult males. Moreover, employment in agriculture, with its

associated web of familial and social relations, carries with it a kind of security not achieved in other sectors in which workers are cut off from traditional society. Thus, the supply of construction labor from agriculture is also not perfectly elastic, in spite of the surplus labor which may exist there.

The supply of labor to construction, even from the disguised unemployed in services and the open unemployed in urban areas, is also not elastic. This is due to the specially heavy physical requirements for labor in this sector. Although the average caloric consumption in Egypt is relatively high, it cannot be expected to be at the average among those lacking regular work. There are also widespread endemic diseases in Egypt which reduce the physical capacity of much of the available labor force.

In addition to these limiting tendencies on the supply of labor to construction, there are the skill barriers mentioned above. There is no good evidence on the sources of the skills required in construction jobs and the time periods required to achieve the skills. However, the evidence from other countries indicates that, on the average, the skill requirements in construction, measured in required training times, are among the highest in any sector. Construction requires a relatively large proportion of rather highly specialized kinds of workers for which the formal or on-the-job training requirement may involve periods of two years or more. Thus, there are substantial skill barriers to the expansion of the labor force in construction which contribute to the inelasticity of the supply of labor to the sector.

2.5 Cost Effects of Migration

In these conditions of less than perfectly elastic supply of construction labor, it is understandable that the migration of construction workers has created strong, upward pressures on wages in the sector. The increases in the wages of construction labor, combined with the constraints on other construction inputs, have led to changes in relative as well as absolute levels of input prices.

The effects of changes in relative prices of the inputs into the construction industry on the demands for these inputs cannot be measured directly and are not clear on a priori grounds. As noted, equipment prices and material inputs, for different reasons, have not fully adjusted to domestic increases in demand because of the rationing of material inputs. In reaction to such rationing, construction firms may, in some cases, maintain work crews on a stand-by basis even when materials are not available. In other cases, they may even hire and use labor only when materials are actually on hand. If the latter is the case, and if the construction labor which is temporarily not at work cannot fill in the idle time created in this manner with other jobs, that reduces total wage income. The general wage level of construction workers may not respond to this type of temporary unemployment if workers have to make a commitment for most of the period of a construction project even if they do not work continually during the period. That type of commitment may simply be the result of having to move to the location of an isolated project.

On the other hand, wages in construction have adjusted to both domestic and foreign demands. Therefore, the price incentives, such as they are,

must have been operating to exploit whatever opportunities exist for the substitution of equipment and materials for labor. But the potentiality for such substitution is not clear, since there are no good estimates of the elasticity of substitution of labor for other factors in construction in Egypt. While it is clear that the demand for labor has increased, the manner in which the increase may have been modified by exploitation of substitution possibilities, such as they are, is not known.

It may be helpful in understanding the changes which have occurred in wages and employment in construction to have recourse to a simple diagram employing supply and demand schedules for construction labor. The conventional competitive assumptions which are strictly required for the use of such diagrmas are almost certainly not met in the construction labor market in Egypt. However, since it is not a controlled market and large-scale wage bargaining does not occur, the competitive assumption may not be too far off. In Figure II-2 the supply schedules for construction labor are S_1 and S_2 with the effect of labor emigration shown as the shift from S_1 to S_2. The demand schedules for construction labor, derived from the demand for construction, are shown as D_1 and D_2. The effects of the increases in demand for construction outputs are shown in the shift from D_1 to D_2 The original equilibrium position is at E_1. The supply and demand shifts lead to a new equilibrium position at E_2.

The results of the construction labor supply and demand shifts are the increases in labor employed and the increases in wages. The domestic labor supply elasticity is sufficiently large, and the demand shift is sufficiently great, so that labor employment in construction increases in spite of the

FIGURE II-2   SHIFTS IN THE SUPPLY OF AND DEMAND
FOR CONSTRUCTION LABOR
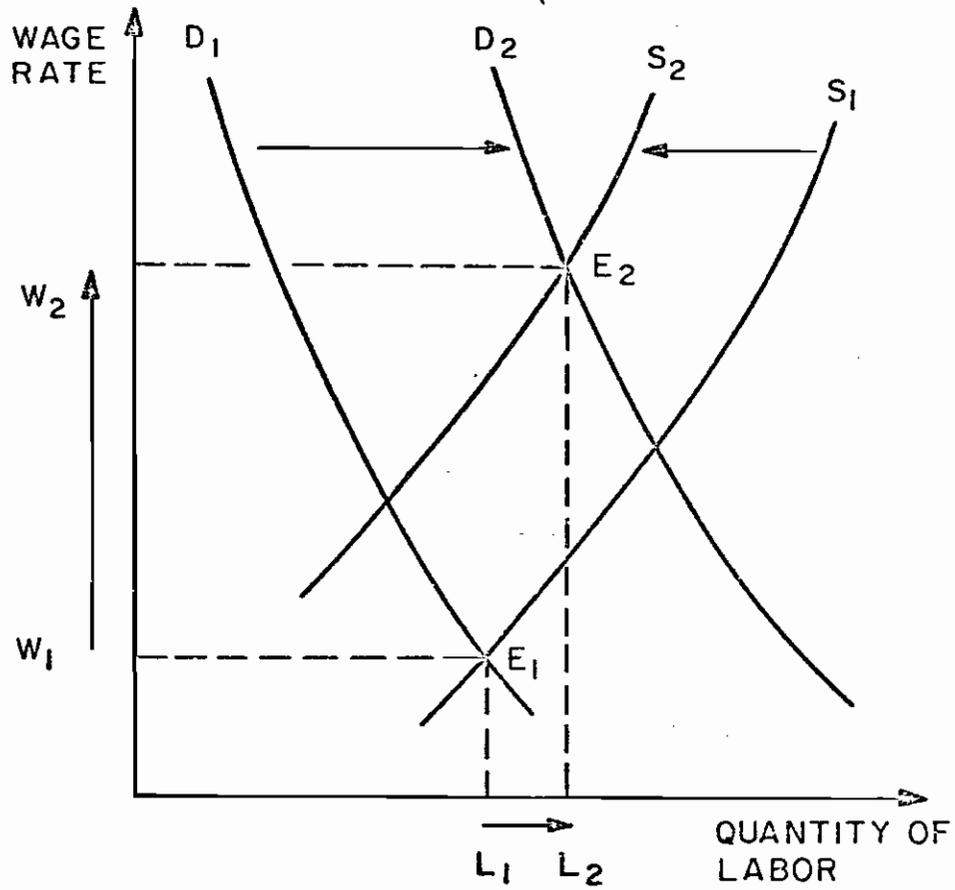
large scale emigration. However, the implication -- and the means of accomplishing the attraction of labor force into the sector -- is a relatively large increase in construction labor wages as has, in fact, occurred.

The wage bill component of construction costs is not only the single most important part, but also the only one which varies substantially to reflect real changes in demand and supply. However, the demand for construction activity in the other Arab countries to which Egyptian labor migrates. In the Arab oil-producing countries, imports of construction equipment and materials are not limited by foreign exchange scarcity or demand. In those countries, it is clearly the availability of labor which is the constraining factor on construction as the rapid increase in labor wages in these countries has clearly reflected. Since Egyptian workers can now move relatively freely, these foreign demands impinge directly on Egyptian labor.

The increase in labor costs is undoubtedly reflected in the cost of construction. Suppose the labor cost is the only element of increase in cost, i.e., assuming that the cost of materials remained the same, and that labor costs increased about five times. Assume also that the share of labor in total output is about 20%, as estimated in the 1976 input-output table. On the basis of these assumptions, the cost of construction output would have almost doubled from 1970 to 1977. Of course, official prices of many materials increased over 80% during this period, and black market prices even more. Thus, the cost push on construction output was even larger than the doubling effect from wage increases alone.

There is another cost effect of migration not so easily captured.

The emigration of construction workers and the shortage of skills in the internal market that it creates not only increase the average wage rate, but also extend the length of the gestation period. This is due to the lack of expertise and the learning-by-doing involved for many new workers. The social cost is the foregone income (return) which would have occurred had the construction work been completed in the right time. It is very difficult to obtain any information about this aspect of the problem. Moreover, the rate of return is different in different sectors of the economy, which would make it extremely difficult to assume an average rate of return in the economy as a whole. In the case of housing, where the average rate of return is 8% or more, an investment of L.E. 1000 in housing would lose at least L.E. 80 per year for every increase in the gestation period by one more year.

The increases in the costs of construction in Egypt due to labor emigration must tend to inhibit capital formation via construction activity to the extent that such capital formation is sensitive to capital prices. Again, however, the magnitude of the effect has not been determined, and can not even be known with intensive investigation. It seems that price incentives would be less important in government projects if the charge, as frequently made, is accurate that decisions are not based on careful cost-benefit analysis, as compared to private projects. On the other hand, private domestic investment projects are mainly small scale industry, commerce, and private housing. While there is probably little formal cost-benefit analysis, such projects are likely to be sensitive to profitability. Foreign private investments tend to be on a larger scale and have their profitability

carefully calculated. Thus both domestic and foreign private investment may have been somewhat discouraged by the increased costs of construction in Egypt created by migration of Egyptian construction labor and the higher wages induced by this. Public investment, on the other hand, might be only slightly responsible to the direct effects of increased wage costs in the construction sector.

This review confirms the generally held opinion that the migration of construction workers has been a major source of increased costs in the sector. While increases in equipment and materials prices have contributed to some extent, they have not been as important as increased labor costs.

3. The Economy-Wide Effects of the Migration of Construction Workers

3.1 A Survey of the Price-Wage Adjustment Process

In order to appreciate the economy-wide impact of the migration of construction labor and the resulting changes in its wage levels, it is useful to survey briefly the characteristics of price and wage determination in the remainder of the Egyptian economy. Briefly put, it is an economy in which there is only a small number of prices and wages which are free to vary to reflect changes in demand and supply conditions and real relative scarcities. This is the result of widespread price regulation and direct subsidies in intermediate and final goods, and wage determination by official processes in the extensive public enterprise sector as well as the large sector of conventional government.

First of all, much of productive activity in the economy is organized in public enterprises. In the public sector, prices, while not necessarily constant, are heavily influenced by political considerations, and the effects of changes in real demand and supply conditions apparently manifest themselves only slowly and to a partial degree. Among the controlled prices are major intermediate goods: oil products, cement and steel products, and electric power, which are inputs into the agricultural, transport, and manufacturing sectors. The prices of the imports of these goods are adjusted by taxes and subsidies to align them with domestic prices. In addition, some important prices in the private sector, especially in "essential" consumer goods, are subjected to government controls with subsidy programs enabling the private firms to survive when their costs increase.

The foreign exchange rate is also a managed price, as is the case in
most of the world. In the period since 1973 and the beginning of the Open
Door policy, in order to stabilize the foreign exchange rate, the govern-
ment has engaged in international borrowing, when necessary, to provide
enough foreign exchange to meet domestic demands. When it has appeared
that those demands would outstrip foreign availabilities, the government
has both rationed and controlled those demands, particularly the demands
generated by its own investment programs.

In addition to controls over prices of intermediate inputs, interest
rates and labor wages are controlled for much of the economy. The bank
lending rates are subject to central bank regulation. Wages in the admi-
nistrative government sectors and public enterprise are also set under poli-
tical pressures, particularly with respect to general levels. Although re-
lative wages are presumably influenced to some degree by supply and demand
considerations, these factors cannot be said to be completely determining.

While there is an extensive black or free market, it does not effec-
tively replace officially determined prices. As noted above, some part of
the supply of price-controlled goods may be traded at unofficial prices,
but not all of the supply of such goods flows through the black or free mar-
ket. The consumer goods whose prices are subsidized, the major intermediate
goods produced by the public sector, the wages of workers in the public sec-
tor, and bank loans to productive enterprises are all effectively price-
controlled. There are, at present, relatively few goods and input prices
which are free to adjust within Egypt in reaction to domestic and inter-
national changes in real relative scarcities. Prices of imports of some

final products, typically "non-competitive" imports, i.e. of types not produced domestically, of both consumer and producers' goods, do change in reaction to international demand and supply pressures. The prices of some privately produced goods, not traded internationally, for example fresh fruits and vegetables and local handicrafts and services, also adjust under domestic pressures. Private housing and other private construction are also among the goods which are subject to pricing by market forces.

If it were not for the extensive control of prices, it would be expected that the migration of Egyptian workers would strengthen the tendency of international goods trade to contribute to the equalization of the prices of productive resources in Egypt with those of the rest of the Middle East. The movement of factors of production is a classical mechanism for factor price equalization. Moreover, in the absence of price controls the migration of Egyptian labor should be particularly effective in strengthening the tendencies toward equalization of goods and factor prices, since such a large part of the migration comes from the construction and service sectors, whose outputs are not traded internationally. Therefore, rather than the equalization tendencies working slowly through the system, it might be expected that the effects would operate relatively quickly and directly. However, the regulation within Egypt of the wages of many types of workers who participate in the migration prevents the factor price equalization mechanism from operating for them. For example, Egyptian teachers constitute 24% of all migrants leaving for work or to find a job in 1973, but leave from and return to a system in which their salaries are set administratively. In fact, this is true of all migrants who take leave from

government positions to work abroad. This category amounts to about 11.3% of all migrants. Of the remaining emigrants, the construction workers are the largest single category.

The increases in the wages of construction workers has attracted labor from sectors with lower wages and other less desirable conditions of work, as well as employing otherwise unemployed workers. Since the administrative government and public enterprise sectors are regarded as providing especially secure and desirable employment, the new construction workers must come mainly from the private sectors, of which agriculture is by far the largest reservoir. Thus the effects of the higher wages in construction are likely to be felt especially in agriculture, but also in employment in other private sectors.

This adjustment process is one means by which the effects of the higher construction wages are transmitted to the rest of the Egyptian economy. But it is a different adjustment process from that which would prevail in a system in which there were a greater degree of wage flexibility and intersectoral mobility of labor. In the Egyptian case a relatively large part of the adjustment is concentrated in agriculture rather than being spread more widely through the system. On the other hand, the construction labor force is only a small fraction of the labor force in agriculture and, thus, adjustments in the former would not be expected to have a major impact on agricultural wages. Given the geographic unevenness of the recruitment of construction labor from agriculture, however, the wage effect could be strong in particular areas.

Because of the relatively fixed wages in the large public sector, the

internal adjustment of labor in that sector to the increased wages of construction workers modulates that increase only slightly. Interestingly, the supply of Egyptian construction workers may be large enough to affect general wage levels in the construction sector in the Middle East, but the adjustment process within Egypt probably has only a marginal influence on domestic wages outside of the construction sector, except for the non-government sectors.

As shown in the preceding section, costs in the construction sector rise as a result of labor emigration, yet this does not necessarily lead to increased prices for the services of the output of that sector. A large part of those services is supplied by the government, for which the construction is undertaken, and which does not generally adjust its prices even when its costs increase. For example, the rental rates in government-supplied housing are not increased to reflect the higher costs of new construction generated by the higher wages of construction workers.

Since demand for construction workers is, to such a large extent, foreign, and not sensitive to costs, adjustment within Egypt in the costs and the prices of the output of construction will not modify that foreign demand substantially. In turn, because the prices of much of the output of the construction sector are fixed, that limits the transmission of the effects of the increased construction wages to the remainder of the economy.

New private housing is probably the most important source of demand for the output of the construction sector which is subject to relatively free market pressures. The rentals in government supplied housing do not clear the markets for that housing and rents are fixed in old housing as

well. The uncleared demands spill over into the new private housing market. That demand is met, however, by the higher costs due to increased labor wages, as well as shortages of rationed materials which make their way into the private new housing construction through the black market. Thus, new private housing is perhaps the most important area in which the tendency for international equalization for construction workers' wages tends also to achieve an international equalization of output prices.

The tendencies are impeded, however, by differential materials pricing, due in part to subsidies but also due to transport costs and differences in production technologies. Yet the effects can be seen not only in the costs and prices of new housing construction, but in the prices of the existing private housing stock in Egypt. The latter prices are not controlled and adjust to the costs and prices of new housing in Egypt, and those costs and prices, in turn, are adjusting to the costs of construction in the Arab countries generally. Clearly, the effects of construction worker migration are far-reaching in the housing sector. If construction in other sectors were sensitive to costs and prices, similar effects would be observed.

To summarize, the higher wages of the construction workers, induced by migration and adjustment to wage scales abroad, represent increased payments to a resource that has become relatively scarce because of developments in other Arab countries. Although the resource is used domestically as well as internationally, domestic adjustments cannot compensate for the international changes in demand, because of the constraints on domestic adjustments processes. Therefore, much of the adjustment which does occur within Egypt must occur, first, in prices of uncontrolled private housing,

and, second, as a result of the higher incomes of the construction workers.

3.2 The Income Distribution Effects of Construction Labor Emigration

The higher wages of Egyptian construction workers imply that their
real incomes have risen, or at least not fallen by so much in the course
of general inflation as incomes of workers with relatively stable wages.
Therefore, it appears likely that there has been a redistribution of real
income toward the construction workers. This is apparent from Table I-9,
in Part I, which shows the levels of money wages, annually, for four major
sectors from 1960 to 1978. Except for agriculture, the increases in money
wages in construction have been far larger than in any other sector. The
effects of this relative change are verified by calculations which show
that the share of construction labor in the national wage bill increased
from 4.23% in 1973 to 6.19% in 1975 and 6.43% in 1977, a larger increase
than the increase in the share of construction employment to total employ-
ment, 52% as opposed to 45%. Furthermore, it should be noted that these
figures are based on wage estimations by the Ministry of Planning which
are much more conservative than the independent wage estimations we have
available. Compare Table II-7 with Table I-9. Table I-9 indicates a 78%
increase in wages from 1970 to 1977, while Table II-7 indicates a 373% in-
crease for the same period.

The changes in real income are accentuated by the fact that a large
proportion of the consumption of construction workers, like the consumption
of less favored labor, is of "essential" consumer goods whose prices are
government controlled. These prices do not respond to the increases in

demand of construction workers and, thus, pass on the benefits of the higher wages of construction workers and mitigate their relative improvement. On the other hand, the prices of the non-controlled goods, e.g. of fruits and vegetables, and some other consumer goods, do respond to increases in demand, so that the producers of these items extract some benefit from the higher incomes of the construction workers.

While the redistributive effects of the increases in relative wages of construction workers cannot be traced in detail, there is additional evidence which will permit one more step in tracking these effects. Table II-8 provides a distribution of income by family by sector of producing sector in which the head of household is employed. While this data is undoubtedly subject to the qualifications associated with income distribution sample surveys, it can be used provisionally to gain some additional insights.

The data belongs to the year 1974, which is only one year after construction wage rates started to increase. What makes comparison somewhat difficult is the fact that in the case of construction, the major source of income is wages, whereas in other activities, returns to other factors play a more important role. Despite this fact, the pattern of distribution of income in construction is far better than in the case of agriculture and nearly equal to the pattern of distribution in industry. However, the percentage of construction families in the lowest income group is greater than in all sectors other than agriculture, manufacturing and the "not classified".

Thus the effects of the relatively large increases in the wages of construction workers must be to reduce the numbers of households associated

with this sector in the lowest income group and to increase the proportion in the middle income groups. This undoubtedly is a reduction in overall income inequality.

3.3 The Impact of Construction Labor Emigration on Investment

It has been argued that the price and income effects of the emigration of construction workers reflects the economy-wide impact of that migration to only a limited degree due to the constraints in the Egyptian economy on the transmission of those effects. Turning to a direct analysis of that emigration, it was estimated above that the number of Egyptian construction workers moving abroad in 1976 was between 46 and 58 percent of the largest estimate available for 1976 of domestic employment in construction. (See Table I-18 above). It was also speculated that the migration had a high proportion of skilled labor relative to the domestic composition of the construction labor force. Thus the emigration has taken away a large and critical component of the labor force in a sector which, in turn, has a critical role in investment and growth.

It is true that the workers who have migrated have been replaced in the sense that the domestic labor force in construction in 1976 was much larger than in 1973. But the recruits to the sector have had to acquire new skills, some of which may require training and experience of two years or more before full qualification is achieved. This undoubtedly has resulted in a reduction in labor productivity and an increase in costs as well as longer delays in completion of construction projects in Egypt. In turn, this has retarded the entire investment program in Egypt.

Table II-8

Percent of Distribution of Sample Families

According to Activity and Level of Income in 1974

Activity	Below LE 400 Income per Year	From LE 400 Less than LE 800 Income	LE 800 and Over	Total % of Sample Families
Agriculture	85.7	11.7	2.5	8068
Mining & Quarrying	68.6	17.4	14.0	86
Manufacturing	74.4	20.2	5.2	5403
Electricity & Water	70.3	23.6	6.1	182
Construction	73.5	18.9	7.6	1076
Commerce & Hotels	70.5	21.5	7.8	5020
Transportation & Communication	65.3	27.0	7.7	2044
Insurance & Finance	34.8	37.3	18.9	434
Services	65.1	23.2	11.6	6277
Not Classified	80.2	13.4	5.9	7690
TOTAL	75.1	18.1	6.6	36280

Source: CAPMAS, Labor Force Sample Survey, May Round 1974, Cairo, 1976. The ratio of the sample to total population is 1/2 per thousand. The fact that some rows do not add to 100 is due to the number of unclear families in every activity which does not exceed 0.2% in each case. The distribution of families is based on the income level of the head of the household.

The difficulties which have been experienced in Egypt in recent years in the construction sector have frequently been remarked upon. The implication has often been present that those difficulties reflect essential features of economic organization in Egypt which are major obstacles to any improvements and which are not likely to change in the course of development.

However, the magnitude and composition of the migration suggests that it alone could account for a major part of the difficulties which have been experienced in that sector. Even the smallest estimate of the proportion of migrants would represent a major adjustment problem for any sector.

3.4 Social Benefits and Costs of the Migration of Construction Workers

As has been frequently noted, the migration of construction workers is a means by which these workers increase their earning power manyfold. The migration is essentially short term; the construction workers go abroad expecting to stay away for only a limited period in order to send back to Egypt, or to return with savings which they have accumulated abroad in foreign currency. Thus their savings should be considered as net factor earnings abroad and are a net addition to the national income of the Egyptian economy. Their annual remittances are all or part of these savings. Since there are no taxes on the remittances they add directly to disposable income as well. The disposable income can be used for additional consumption or savings in Egypt.

The savings of construction workers abroad and their remittances are conceptually identifiable but practically impossible to estimate. Total remittances of all types of Egyptian emigrants have been estimated; for 1977

they are calculated at $700 million plus another $725 million for "own exchange" imports which are largely financed by workers' earnings abroad. However, the composition of Egyptian workers abroad is extremely varied and it is not possible to isolate the specific contribution of construction workers to total remittances.

The earnings of the construction workers generate private benefits to the workers and their families. However, in assessing the overall impact of the migration, it is necessary to take into account the social costs and benefits as well, that is, to consider whether there are public benefits as well, that is, to consider whether there are public benefits which accrue in addition to the private ones and whether there are costs associated with the migration which, all or in part, are borne publicly. The analysis, unfortunately, cannot be carried out in a quantitative manner due to the lack of essential information. A qualitative evaluation will lead to rather clear conclusions. In this case, as with respect to other major changes in resource use in developing countries, the analysis must take into account issues which would not be considered in economies with reasonably full use of resources. Since resource markets do not clear at the going prices in Egypt, resource prices cannot be taken as accurate reflections of their real social costs. As a result, the analysis of the social benefits and costs of migration must consider effects which operate through markets but are imperfectly measured by them.

Perhaps the most obvious source of public benefits from migration of construction workers is in the possibility of a difference between the true scarcity value of a foreign exchange to the Egyptian economy and the exchange

rate at which foreign earnings are actually changed into Egyptian currency
by the migrants. The extraordinary magnitude of the Egyptian balance of
payments deficits are well known. For 1978, the deficit on goods and ser-
vices account is estimated at over $805 million in spite of more than $1.6
billion of immigrant remittances. Adding debt amortization requirements
and a small increase in foreign exchange reserves brings the estimated
foreign exchange requirements to over $2.1 billion. That would be almost
20% of the gross national product projected for 1978 in the 1978-82 plan,
using the 2.56 dollars per LE exchange rate. At the more widely used paral-
lel market rate, the estimated foreign exchange requirements would be almost
a third of the Egyptian gross national product. It can be appreciated from
the above comparisons that foreign exchange is particularly scarce in Egypt
and even the parallel market rate may underestimate that scarcity. If that
is the case, in addition to the private benefits of the income earned abroad
there is clear public benefit from the exchange of foreign earnings by con-
struction workers into Egyptian pounds at the going rate. Thus the $1425
million of estimated earnings remitted would be worth $1700 million if the
exchange rate were 20 percent overvalued and the difference would be a clear
social benefit not captured privately.

Turning to the changes which occur within Egypt, the removal of con-
struction workers through emigration is not like a domestic reallocation
of labor under conditions of full employment. In Egypt, when construction
workers leave, other workers take their place, as was indicated in the re-
view of employment changes in the domestic construction sector. Some of
these new construction workers, if not previously completely unemployed,

were less than fully employed. As a result of labor emigration, the capital and other resources per unit of labor remaining rises. While not all labor can or will take advantage of the new resource ratios through employment or higher wages, some workers will undoubtedly benefit. And that benefit is a different kind of impact effect than occurs in situations where workers have been fully employed. The benefit is not just a result of differences in marginal productivities in two types of job, but between earnings in a full time job and no earnings or potential earnings associated with full or partial unemployment. The migration of construction labor is the means by which these workers benefit from the increase in oil prices in 1973 and 1974 which so raised the incomes of the Middle East Arab oil exporting countries that they accelerated their programs of development with substantial increases in investment and, therefore, in construction.

Turning to social costs which may be created by the emigration, the one most commonly considered in models of international migration is the cost of education of the labor which leaves. There are two types of education to be taken into account: general education, which is necessary for good citizenship as well as economic performance, and special education required for the particular craft.

The cost of the first type of education is borne publicly, but unlike the losses considered in the conventional discussions of brain drain, the benefits, such as they are, are not permanently lost to Egypt. The Egyptian construction worker emigrants do not stay away indefinitely but return after relatively short periods. Without respect to the cost of special training, that is borne publicly for those workers who attend the craft

schools. However, the output of these schools has been quite small relative to the additions to the construction labor force. Thus most labor training obtained in this sector has been "on the job". There has been some rather controversial analysis of who bears the costs of on-the-job craft training, but no one has suggested that such costs be borne publicly. If there is no monopsony power on the part of the suppliers of labor and if there is perfect knowledge, then the costs of training labor on-the-job will be passed on to the worker. In other circumstances, the employer may bear all or part of the costs and pass them on to the buyer of the construction output. In Egypt, the producer and buyer of construction output is, to a large extent, the government sector itself. If the public firms behave like private firms, then their public ownership is of no consequence with respect to the distribution of the cost of labor training. If public firms accept lower returns on other resources in order to avoid placing the costs of training on labor, then labor training costs are, in fact, borne broadly. The emigration of the construction labor in this case would generate a true social cost due to the loss to Egypt, even though temporary, of skills created in part at public expense.

Another effect of international labor migration which has been examined in the economic literature is the creation in the sending country of the expectation of increasing wages as the result of the higher wages received abroad. The workers who leave come back with the experience of higher wages. That experience, directly and vicariously, generates expectations of higher wages which run through the system as a whole and may tend to increase wages more widely than in the construction sector itself.

This process, in turn, would generate price pressures through the system and contribute to inflation. It is true, as pointed out above, the wages in construction have risen rapidly as compared to most other sectors of the economy. But it is difficult to estimate how much this may have contributed to general inflationary expectations.

With respect to the microeconomic aspects of the welfare effects of emigration, that emigration can be regarded as a shift in the supply schedule of construction labor such that less of this labor would be offered at each price, or, alternatively, a higher wage would be required to evoke the same quantity offered. Putting aside any shifts in the demand for construction labor, the intersection of the old demand and new supply schedules would be at a higher wage and a lower quantity of labor hired. There would be a corresponding reduction in the "consumer's surplus", in this case the benefits accruing to the buyers, direct and indirect, over and above the wage costs of construction labor. There would also be a reduction in "producer's surplus", which is the benefits over and above the wage paid to the suppliers of construction labor. However, it is not clear that there would be a reduction in this supplier's surplus on a per worker basis. That would depend on the demand and supply elasticities. In either case, the immediate direct effect would be a reduction in total welfare generated in the construction sector. This does not, however, imply a net loss of welfare to the entire economy. As noted, there would be substantial increases in the earnings of construction labor emigrants. Presumably those generate more than enough "supplier's surplus" in work abroad to offset whatever is lost in internal employment or the workers never would have left Egypt. Indeed,

given the enormous differentials between domestic and foreign wages in construction, it is hard to believe that the loss of "consumer's surplus" is also not more than offset.

There are, moreover, other indirect and second order effects which also contribute to reducing any welfare losses due to the migration of construction labor. As noted, the construction labor which emigrates is replaced in part by labor which would otherwise be less than fully employed and that generates additional welfare. It is also true that the employment of labor that was formerly underemployed will lead to an increase in consumption and, thus, a drain on resources that might be used for investment purposes. But, since the labor was already consuming at some level, the new employment cost of labor moving into the construction sector is not the full amount of the associated consumption, but only the marginal consumption. In addition, of course, the remitted savings of emigrants provide additional resources which can be used for investment purposes.

Since the savings of the emigrant construction workers are repatriated relatively quickly and are large relative to previous earnings, they can be expected to be a substantial supplement to local demand and that they become available in roughly the same time period in which the supply of construction labor is being constricted by the migration. Thus, whatever losses may occur in consumer's surplus due to the migration of construction labor and the resulting increase in construction wages and costs, are also offset by an increase in supplier's surplus in other sectors resulting from increased domestic demands from construction workers and their families.

The increases in wages resulting from increased local demand supported

by the remittances of construction, emigrants may be limited to particular
sectors as pointed out above, because of the constraints on wages which
exist in the government enterprises and government sector in particular.
Thus the offsets to the decline in consumer's surplus in construction may
be spread unevenly through the economy. Table I- 9, which provided evidence
on the uneven increases in wages in Egypt, is suggestive of the differential
impact of demand induced by spending of construction labor and their fami-
lies. However, it is no more than suggestive, because the relative wage
changes which are recorded are due to many other factors than the emigra-
tion of construction labor and the repatriation of their remittances.

Altogether there appears to be little doubt that although there may
be some social costs associated with the migration of construction workers,
the direct and indirect benefits are so substantial that they must more
than offset those costs.

4.   Political Implications of Construction Labor Migration

It is too early to determine what the political effects of increased migration of construction workers may be. However, some hypotheses may be suggested to delineate the potential implications.

First, with respect to domestic politics, the migration of construction workers is depriving the political system of a potential source of political opposition and of dissatisfaction with economic conditions. Migration opportunities are serving as absorbers of social unrest due to unemployment, and protect some sectors of the labor force against the effects of inflation. The labor union movements in Egypt have traditionally been relatively weak, and strikes were even outlawed under the Nasser regime. By leaving the country, the potential constituents for a stronger labor organization are withdrawing from effective participation in a class-based movement. This will reinforce the fragmentation of Egyptian labor and reduce the potential for political organization.

There are also demonstration effects that might mitigate against these tendencies. Migrant labor returns to Egypt with greater purchasing power and with dramatic demonstrations of material wealth. The "lessons" projected to the non-migrants might be that migration results in observable benefits. But it might also be perceived as a legitimate basis on which to make greater demands on the economic and political systems for benefits that are, as yet, not available to domestic labor.

The demonstration effects can further be manifested in terms of the introduction of new values in a section of the population that is, by all accounts, traditional in nature. This can result in a disjuncture of social

values between those that have migrated and those that are left behind.
The migration experience invariably serves as a modernizing one -- the mi-
grant is in close contact with modern transportation, communication, social
organization, and so forth -- and once experienced, it cannot be retracted.

Second, with respect to regional political implications, many stories
are told of the adjustment of Egyptian labor to foreign conditions and to
the extent of accommodation to an alien environment. The migrants are in-
variably in a disadvantaged position in the recipient countries relative
to the citizenry. While it is safe to say that the construction workers
are not highly politicized as they enter into the other Arab countries,
it is also plausible to suggest that any context that raises questions about
equity or just treatment could result in the rapid politicization of this
group. The traditional view of the Egyptian worker as being "poor but proud"
can serve as a vehicle of politicization. How they are treated in the re-
ceiving countries may well determine the extent of their adjustment in and
reaction to an alien environment.

By all accounts, labor migration constitutes "low politics". However,
it might bear on the "high politics" of diplomacy among the Arab countries
if governments assume a more direct role in the management of migration.
Already there exist formal agreements for the supply of construction workers
to the other Arab countries. To the extent that these are expanded, the
Egyptian government may find itself in the position of defending the posi-
tion, even "rights" of its citizens abroad.

There are several agreements between Egypt and other Arab States for
regulating later migration. In 1974 the Ministry of Labor in Egypt and the

Ministry of Labor and Social Affairs of Qatar entered in an agreement to facilitate the migration of Egyptian workers whereby Qatar provides information to Egypt regarding employment and living conditions, and to direct employers' requests for labor through the Qatar Ministry of Labor and Social Affairs to the Egyptian Ministry of Labor.[5] Article IV of the agreement stipulates that the terms and circumstances of work, and rights and duties of Egyptian employees in Qatar should be specified on individual contract between the migrant and the employer, providing such an article does not conflict with labor regulations in Qatar. This article reflects the emergence of governmental recognition of the importance of protecting individual working conditions. The remainder of the agreement specifies additional features of labor recruitment and employment, with notable stipulation, in Article XI that Egyptian migrants may remit savings in accordance with prevailing financial regulations. Finally, the last article of the agreement states a duration of four years, with an automatic renewal, unless one of the two parties requests termination. Such a request must be made at least six months prior to the official termination date.

The Qatar agreement is important in focusing on labor conditions, official regulation of migration, and explicit recognition of remitted earnings. This broad type of concern has long been in force with respect to the migration of school teachers. The formal regulation of labor, in the more generalized sense, yet focusing almost entirely on construction and related skills, is a recent development, reflecting the changing pattern of labor migration. The Qatar agreement typifies the increasing activism of the Egyptian

[5]State of Qatar, Ministry of Labor and Social Affairs, (Doha; P.O. Box 201) September 12, 1974.

government's direct rule in regulating migration.

There are, also, regularized procedures for the migration of Egyptian workers to Libya. In addition to the migrants on private contracts and those "searching for work", there are the public sector enterprise workers and the workers seeking external employment through government agencies. The Ministry of Labor's Department of Manpower and Training is now keeping good records of the migrants to Libya, with the objective of recording not only the outflow but developing a basis for determining the types of vocational training to be carefully considered for governmental support.

The outflow of Egyptian workers to other Arab countries is having yet another impact in Egypt with potential political effects as well. There is spotty evidence of the beginning of in-migration of alien labor into Egypt. Korean workers are now employed in several industrial enterprises on the outskirts of Cairo. Although the numbers are small -- no more than a couple of hundreds to date -- it is the fact of foreign labor that is crucial. There is no historical precedent for this type of labor immigration. Traditionally, Greeks, Italians, Americans, and other Europeans were employed in relatively high status occupations. Manual labor was always local.

Korean labor in Egypt is of a relatively skilled nature. This may provide further evidence of the country's depletion of such skills due to large-scale emigration. Korean workers may represent a short-term solution, pending the training of Egyptian workers. In this eventuality, Koreans are only a temporary input into Egypt's labor profile with no long term presence. Alternatively, there could be more a longer range Korean presence. If

training is slow, or if labor scarcity becomes more acute -- or a combi-
nation of these possibilities -- then Korean workers would be in Egypt for
longer periods. In this case, it would be difficult to expect the presence
of alien workers to go unnoticed -- or without protest -- by the media, the
members of trade concerns, or the parliamentary representatives of urban,
densely populated, industrial districts.

   While these observations are speculative in nature, they indicate the
type of political implications of the country's changing labor profile.
Whether these changes require long-term political adjustments -- or responses --
remains unclear. But it is indisputable that Egypt's government is assuming
a more direct role in regulating the labor force than at any time in the
country's modern history.[6] This may well reflect a perception of impending
scarcity than evidence of the continued "surplus" of labor. In the process,
however, there will be an inevitable politicization of the issues and of
the country's emigration of labor.[7]

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[6]There are agreements with Greece and the Sudan as well.

[7]The recent series of articles in Al Ahram (September 17 and 18, 1978) is
evidence of this politicization.

5.   Conclusions and Policies

The effect of the large scale emigration of Egyptian construction workers has certainly been to shift the supply of this type of labor in the domestic economy. Although the number of workers in the construction sector has actually increased in absolute numbers in spite of the emigration, that increase has been accomplished only by means of, and with the consequences of, dramatically higher wages. Thus, the international demand for construction labor in the Middle East has increased the real costs of construction in Egypt, and, correspondingly, the real incomes of construction labor.

The higher wages in construction have induced the transfer of employed labor from other sectors of the economy as well as pulling into the construction sector labor which was formerly unemployed or underemployed. To the extent that the labor attracted into the construction sector to replace the emigrants was formerly productive, there has been some reduction in real output in other sectors. Although this may have been offset by increases in the use of other types of factors, there has been a real cost to that adjustment also.

However, the transmission of the effects of the emigration of construction workers to the remainder of the Egyptian economy is moderated by the quite imperfect interconnections which exist among labor markets as well as the extensive controls over prices in goods markets. Employment in public enterprise and conventional government, where wages are set administratively, remains highly attractive to labor because is provides a high degree of job security. Thus, labor does not move readily out of those sectors

which are particularly important in Egypt.

There has, undoubtedly, been a redistribution of income towards workers in the construction sector, in part due to the emigration phenomenon. This is an aspect of the international equalization of wages in construction which is brought about by the migration. But that process does not spread equalization uniformly through the economy due to the imperfections and rigidities mentioned.

The higher costs of construction mean that the real value of investment fixed in nominal terms has decreased. This reflects the opportunity costs of consumption which has been lost in the shift of the labor force. The higher costs of investment may be counted as an especially important social cost in an economy placing heavy stress on accelerating its economic growth, in large part through increasing the rate of investment.

There may also be some social costs due to the loss of labor whose training costs have been borne publicly. Yet, it is also true that the training costs may, to a considerable extent, have been borne by the workers themselves.

In addition to the large private gains to the emigrating labor, as well as to the domestic labor which has replaced it in the construction sector, there are some public benefits as well. These are primarily in the remittances, which may be transferred at exchange rates which do not represent the real scarcity value of foreign exchange.

Turning to the policy issues associated with the emigration of construction labor, the analysis has made clear that the development processes of the Arab countries are interrelated through their common use of the Egyptian

labor force pool. This interrelationship is particularly significant with respect to the achievement of investment targets given the large proportion of construction output in those targets and the critical role of skilled labor construction output. In effect, there is a competition for skilled construction labor in the Middle East. It is somewhat relieved by the avai-lability of construction labor force from Korea, Pakistan, and other coun-tries than Egypt. But the competition impinges most heavily on Egypt, as the estimates made above of the magnitude of the construction labor emi-gration indicate.

The existence of the interrelationships among development programs of Arab countries suggests that there may be some opportunities for overall improvement in performance by coordination of the programs. Yet detection of such overall improvement would require a means of balancing the rela-tive changes in different countries. From this viewpoint of particular countries, particularly the oil-exporting and labor-importing countries, any change which restricted the availability of construction labor would make them worse off as compared to the present situation in which there are no constraints. There are also political factors which must be taken into account if coordination of development programs is to take place. The oil exporting countries have improved their political position in the region by virtue of increased wealth, not the coordination programs.

In any case, it is unlikely that any international coordination of development programs will be achieved in the region, recognizing that it has not been achieved in other areas, such as Eastern Europe, where condi-tions might appear to be more conducive to such coordination. Moreover,

it is unlikely that, in the present political climate in Egypt, constraints could be placed on the free flow of construction labor to other Arab countries. Thus, the tasks of Egyptian policymaking with respect to the flow of construction worker emigrants are to maintain and, if possible, increase the capture for the entire economy of the benefits of earnings abroad and to facilitate the domestic adjustment to emigration.

As noted earlier, a substantial part of remittances are repatriated under the system of "own exchange" imports. This allows persons or companies holding foreign exchange which could be used in the "parallel market", i.e. the lower priced Egyptian pound market, to use that foreign exchange directly for the import of goods. That removes the goods imports from any licensing restrictions. Although detailed information on the commodity composition of imports under the own exchange system is not available, it is believed that it has a relatively high proportion of consumer goods. Given the social goals within Egypt of accelerating the rate of growth and, therefore, the rate of investment, it would be preferable if more of the foreign exchange generated by remittances were available for the purchase of investment goods. In order to achieve such a redirection, it would be necessary to make it more attractive for the earners of remittances to sell their foreign exchange to the Egyptian banking authorities.

To increase the total of earnings abroad by construction workers, consideration might be given to copying the successes of the (Arab Contractor) Organization. In the Arab oil-exporting countries, the competition for construction contracts appears to have increased. Clearly, more Egyptian workers are used by non-Egyptian contractors than by Egyptian contractors.

However, there might be some cost advantages to integrating the recruitment of labor and its employment in the other Arab countries by Egyptian contractors and, thus, providing a competitive edge for the use of Egyptian labor. Some labor importing countries in the region are reacting to the increased importation of Korean workers, and to facilitating the immigration of Indians and Pakistanis.

To facilitate domestic adjustment to emigration, consideration should be given to devising organizational devices for diverting labor to construction which is now underutilized in its present occupation. According to general folklore, this latter labor is, to a large extent, in the public sector, both administrative government and public enterprise. For example, a recent study by the Organization for Public Administration estimates the number of messengers in the government and public sector to be around 259,000, or roughly three percent of the total Egyptian labor force. Two alternative means of channeling underemployed labor in the government sectors into construction activities might be considered. First of all, the new public construction firms could be formed, recruiting workers from other public sector activities. Alternatively, existing public enterprises could form their own construction units for their new projects, recruiting workers from other internal activities for this purpose. Both alternatives require careful examination before feasibility can be established and, in that case, before operational methods can be developed.

In addition, further assessments should be undertaken of the means of facilitating the training of construction workers. Previous experience with the training institutes in this sector has not been successful. The enrollment

and outputs of these institutes have been too small to affect the overall supply of skilled construction labor. Nonetheless, the number of construction workers has been increasing and, presumably, the necessary skills are being generated. It would, therefore, be desirable to improve the understanding of the training process in the construction sector in order to determine if there are points at which government intervention through subsidies or by the creation of dispersed training facilities could facilitate the process.

The adjustment within Egypt to the loss through emigration of a large proportion of the construction labor force, which, in turn, is such a critical part of the entire labor supply, has been remarkable. It is not surprising that there have been major problems; rather, it would have been surprising had this not been the case. But, as pointed out, it is quite possible that the most difficult of the problems are now behind Egypt. That does not mean that there is nothing left to worry about in this sector; it may mean that the problems are more manageable than would have appeared several years ago. Appreciation of these facts also leads to a different assessment of the difficulties which confromt Egyptian economic growth in the future.

STATISTICAL APPENDIX

STATISTICAL APPENDIX

Table 1

Distribution of the Labor Force by Economic Activity

Industry \ Year	1937	1947	1960	1966	1972	1974
Agriculture	4020431	4085670	3689845	3973710	4655700	4198300
Mining & Quarrying	10828	12965	20489	17659	19800	20200
Manufacturing	352706	560601	671387	1026325	1113600	1355700
Construction	120706	113361	155126	203517	206900	232900
Electiricty, Gas & Water	20966	22595	35549	50984	39200	40400
Commerce	439542	590380	611801	590813	849000	1031400
Transport	138911	203335	254483	337223	340700	396600
Services	701749	1051776	1245886	1191620	1409100	1547100
Not Classified	32161	354317	843388	942149	837000	855400
TOTAL	5838000	6995000	7734000	8334000	9471000	9678000

Sources: 1937, 1947, 1960 from Population Census 1960, Vol. II, General Tables, Cairo, 1963, p. 333. 1966 figures from Population Census 1966, CAPMAS, Cairo 1972. 1972, 1974 are from Labour Force Sample Surveys, May Rounds 1972, 1974, CAPMAS, Cairo, 1974, 1976.

Table 2

Occupational Structure
1937-1974

Occupation	1937[1]	1947[1]	1960	1966	1970	1971	1972	1973	1974
Professional	135447	190132	215325	367693	400700	404100	479600	479700	520500
Administrative	282823	319052	74664	137258	97500	114900	135300	93300	91300
Clerical	.		249669	417330	439600	408400	448400	466800	505800
Sales	588457	449321	555939	479921	542500	587100	610700	592900	767900
Farmers	3987150	4015395	3681380	3847035	4008700	4343400	4549800	4331900	4125200
Transport Workers	132617	160980	208948	247499	-	-	-	-	-
Craftmen & Production	195952	764301	1103504	1377711[2]	1685200[3]	1543500[3]	1611000	1810200	1986200
Miners	4888	3953	11886	-	-	-	-	-	-
Service Workers	311193	381642	642073	580541	805900	747800	720800	774200	824500
Not Classified	199473	710224	147204	180420	43900	69600	74500	3500	5100
Not Shown			-	-	20200	33700	51900	21800	40800
TOTAL	5838000	6995000	6890612	7635408	8044200	8252500	8682000	8567300	8867300

[1] Date is uncertain. We are investigating the problem at this time.
[2] Includes production workers and miners.
[3] Includes transport workers, production workers and miners.

Sources: 1937, 1947, 1960 are from Population Census 1960, Vol. II, General Tables, Cairo 1963, 1966 are from Population Sample Census, 1964, CAPMAS, Cairo 1971. 1972, 1973, 1974 are from Labour Force Sample Surveys 1972, 1973, 1974, May Rounds 1972, 1973, 1974, CAPMAS.

Table 3

Distribution of the Labor Force by Activities for Each Occupation - 1960

Occupation	Agriculture	Mining and Quarrying	Manufacturing	Construction	Electricity Gas and Water	Commerce	Transport	Services	Not Classified	Total
Professional	2715	827	8338	2669	1218	4696	4713	187262	2887	215325
Administration	243	235	8224	6547	833	7344	4872	46001	385	74684
Clerical	7133	974	26372	2381	3357	35522	20606	142953	10371	249699
Sales	1357	54	4933	615	9	533982	554	6466	7969	555939
Farmers	3644632	36	1162	112	485	2442	564	16710	15237	3681380
Miners	17	11068	217	114	11	40	10	233	176	11886
Transport Workers	4809	678	5984	1005	144	5924	145493	39427	6384	208948
Craftsman/Production	9620	5624	601623	139794	27786	13900	64653	206125	34379	1103504
Service Workers	16845	852	11076	1519	1377	8964	11445	580462	9533	642073
Not Classified	2474	141	2558	370	329	787	1573	20247	118725	147204
Total	6009045	20489	671387	155126	35549	611801	254483	1245886	206046	6890612

Table 3 (continued)

Distribution of the Labor Force by Activities for Each Occupation - 1960

Activity / Occupation	Agri-culture	Mining and Quarry-ing	Manu-factur-ing	Con-struc-tion	Electri-city Gas and Water	Commerce	Trans-port	Services	Not Classi-fied	Total
Professional	1.26	.38	3.87	1.24	.57	2.18	2.19	86.97	1.34	100
Administration	.33	.31	11.01	8.77	.45	9.83	6.52	61.59	1.18	. 100
Clerical	2.86	.39	10.56	.95	1.34	14.23	8.25	57.26	4.15	100
Sales	.24	.01	.89	.11	-	96.05	.10	1.16	1.43	100
Farmers	99.00	-	.03	-	.01	.07	.02	.45	.41	100
Miners	.14	93.27	1.83	.96	.09	.34	.08	1.96	1.48	100
Transport Workers	2.30	.32	2.86	.48	.07	2.40	69.63	18.87	3.06	100
Craftsman/Production	.87	.51	54.52	12.67	2.52	1.26	5.86	18.68	3.12	100
Service Workers	2.62	.13	1.87	.24	.21	1.26	1.78	90.40	1.48	100
Not Classified	1.68	.10	1.74	.25	.22	.53	1.07	13.75	80.65	100
Total	53.55	.30	9.74	2.25	.53	8.88	3.69	18.08	2.98	100

Source: Population Census, 1960, Vol. II, General Tables, Department of Statistics, Cairo, 1963.

Table 4

Distribution of the Labor Force by Occupations for Each Activity - 1960

Occupation / Activity	Professional	Administration	Clerical	Sales	Farmers	Miners	Transport Workers	Craftsmen and Production	Service Workers	Not Classified	Total
Agriculture	2715	243	7133	1357	3644632	17	4809	9620	16845	2474	3689845
Mining and Quarrying	827	235	974	54	36	11068	678	5624	852	141	20489
Manufacturing	8338	8224	26372	4933	1162	217	5984	601623	11976	2558	671387
Construction	2669	6547	2381	615	112	114	1005	139794	1519	370	155126
Electricity, Gas, Water	1218	833	3357	9	485	11	144	27786	1377	329	35549
Commerce	4696	7344	35522	533982	2442	40	5024	13900	8064	787	611801
Transport	4713	4872	20606	554	564	10	145493	64653	11445	1573	254483
Services	187262	46001	142953	6466	16710	233	39427	206125	580462	20247	1245886
Not Classified	2887	385	10371	7969	15237	176	6394	34379	9533	118725	206046
TOTAL	215325	74684	249669	555939	3681380	11886	208948	1103504	642073	147204	6890612

Table 4 (continued)

Distribution of the Labor Force by Occupations for Each Activity - 1960

Occupation / Activity	Profes-sional	Admin-istra-tion	Cleri-cal	Sales	Farmers	Miners	Trans-port Workers	Crafts-men and Produc-tion	Service Workers	Not Classi-fied	Total
griculture	.07	.01	.19	.04	98.77	-	.13	.26	.46	.07	100
ining and Quarrying	4.04	1.15	4.75	.26	.17	54.02	3.31	27.45	4.16	.69	100
anufacturing	1.24	1.22	3.93	.73	.17	.03	.89	89.61	1.78	.38	100
onstruction	1.72	4.22	1.53	.40	.07	.07	.65	90.12	.98	.24	100
lectricity, Gas, Water	3.43	2.34	9.44	.03	1.36	.03	.41	78.16	3.87	.93	100
ommerce	.77	1.20	5.81	87.28	.40	.01	.32	2.27	1.32	.13	100
ransport	1.85	1.91	8.10	.22	.22	-	57.17	25.40	4.50	.62	100
ervices	15.03	3.69	11.47	.52	1.34	.02	3.15	16.54	46.59	1.63	100
ot Classified	1.40	.19	5.03	3.87	7.39	.08	2.10	16.68	4.63	57.62	100
OTAL	3.12	1.08	3.62	8.07	53.43	.17	2.03	16.01	9.32	2.14	100

Source: 1960 Census

Table 5

Distribution of the Labor Force by Activities for Each Occupation - 1966

Activity / Occupation	Agri-culture	Mining and Quarry-ing	Manu-factur-ing	Con-struc-tion	Electri-city Gas and Water	Commerce	Trans-port	Services	Not Classi-fied	Total
Professional	22065	1722	22704	7193	2355	7035	7684	288160	8775	367693
Administration	6397	747	24595	11644	1448	16545	12527	59685	3670	137258
Clerical	34001	2453	82951	11559	8996	52779	52187	155796	15765	417387
Sales	5597	109	16234	1177	130	415779	1930	12586	25379	479921
Farmers	3775351	29	4827	529	1174	4600	2709	11592	46224	3847035
Miners										
Transport Workers	16113	1246	15262	6362	2491	8118	153285	37571	6994	247442
Craftsman/Production	53997	9816	826620	155905	24328	72408	85695	114128	34814	1377711
Service Workers	23831	1079	19704	5869	9610	7842	16777	474521	21308	580541
Not Classified	35458	458	13428	3279	452	4707	4429	37581	80628	180420
Total	3973710	17659	1026325	203517	20984	590813	337223	1191620	243557	7635408

Table 5 (continued)

Distribution of the Labor Force by Activities for Each Occupation - 1966

Activity / Occupation	Agri-culture	Mining and Quarry-ing	Manu-factur-ing	Con-struc-tion	Electri-city Gas and Water	Commerce	Trans-port	Services	Not Classi-fied	Total
Professional	6.00	.47	6.17	1.96	.64	1.91	2.09	78.37	2.39	100
Administration	4.66	.54	17.92	8.48	1.055	12.05	9.13	43.48	2.67	. 100
Clerical	8.36	.59	19.87	2.77	2.16	12.65	12.50	37.33	¬3.77	100
Sales	1.17	.02	3.38	.25	.03	86.84	.40	2.62	5.29	100
Farmers	98.14	-	.13	.01	.03	.12	.07	.30	1.20	100
Miners										
Transport Workers	6.51	.50	6.17	2.57	1.01	3.28	61.95	15.18	2.83	100
Craftsman/Production	3.92	.71	60.00	11.32	1.77	5.26	6.22	8.28	2.53	100
Service Workers	4.10	.19	3.39	1.01	1.66	1.35	2.89	81.74	3.67	100
Not Classified	19.65	.25	7.44	1.82	.25	2.61	2.45	20.83	44.69	100
Total	52.04	.23	13.44	2.67	.67	7.74	4.42	15.61	3.19	100

Source: 1966 Census

Table 6 (continued)

Distribution of the Labor Force by Occupations for Each Activity - 1966

Activity \ Occupation	Profes-sional	Admin-istra-tion	Cleri-cal	Sales	Farmers	Miners	Trans-port Workers	Crafts-men and Produc-tion	Service Workers	Not Classi-fied	Total
Agriculture	.56	.16	.88	.14	95.01		.41	1.36	.60	.89	100
Mining and Quarrying	9.75	4.23	13.89	.62	.16		7.06	55.59	6.11	2.59	100
Manufacturing	2.21	2.40	8.08	1.58	.47		1.49	80.54	1.92	1.31	100
Construction	3.53	5.72	5.68	.58	.26		3.13	76.61	2.88	1.61	100
Electricity, Gas, Water	4.62	2.84	17.64	.25	2.30		4.89	47.72	18.85	.89	100
Commerce	1.19	2.80	8.93	70.54	.78		1.37	12.26	1.33	.80	100
Transport	2.28	3.71	15.48	.57	.80		45.46	25.41	4.98	1.31	100
Services	24.18	5.01	13.07	1.06	.97		3.15	9.58	39.82	3.15	100
Not Classified	3.60	1.51	6.47	10.42	18.98		2.87	14.29	8.75	33.10	100
TOTAL	4.82	1.80	5.47	6.29	50.38		3.24	18.04	7.60	2.36	100

Source: 1966 Census

Table 6

Distribution of the Labor Force by Occupations for Each Activity - 1966

Activity \ Occupation	Profes-sional	Admin-istra-tion	Cleri-cal	Sales	Farmers	Miners	Trans-port Workers	Crafts-men and Produc-tion	Service Workers	Not Classi-fied	Total
griculture	22065	6397	34901	5597	3775351		16113	53997	23831	35458	3973710
ining and Quarrying	1722	747	2453	109	29		1246	9816	1079	458	17659
anufacturing	22704	24595	82951	16234	4827		15262	826620	19704	13428	1026325
onstruction	7193	11644	11559	1177	529		6362	155905	5869	3279	203517
lectricity, Gas, Water	2355	1448	8996	130	1174		2491	24328	9610	452	50984
ommerce	7035	16545	52779	416779	4600		8118	72408	7842	4707	590813
ransport	7684	12527	52187	1930	2709		153285	85695	16777	4429	337223
ervices	282150	59685	155796	12586	11592		37571	114128	474521	37581	1191620
ot Classified	8775	3670	15765	25379	46224		6994	34814	21308	80628	243557
OTAL	367693	137258	417387	479921	3847035		247442	1377711	580541	180420	7635408

Table 7

Distribution of the Labor Force by Activities for Each Occupation - 1974
(per hundreds)

Industry / Activity	Agri-culture	Mining and Quarry-ing	Manu-factur-ing	Elec. Gas Water	Con-struc-tion	Com-merce	Trans-port	Finance and Insur.	Services	Not Classi-fied	Total
Professional	159	18	484	90	102	159	152	208	3833	12	5217
Administrative	28	10	87	5	146	35	47	36	518	1	913
Clerical	303	19	813	88	149	320	730	438	2120	43	5068
Sales	12	3	116	9	8	7494	11	18	12	4	7692
Service Workers	255	13	548	51	93	1341	322	97	5471	73	8264
Farmers	40800		87	2	5	143	6	22	138	52	41264
Craftsman & Production	364	138	11398	157	1822	810	2641	35	2502	123	19990
Not Classified	53	1	24	2	4	12	7	2	21	2225	2351
Total	41983	202	13557	404	2329	10314	3966	856	14615	2533	90759

Table 7 (continued)

Distribution of the Labor Force by Activities for Each Occupation - 1974
(per hundreds)

Industry / Activity	Agri-culture	Mining and Quarry-ing	Manu-factur-ing	Elec. Gas Water	Con-struc-tion	Com-merce	Trans-port	Finance and Insur.	Services	Not Classi-fied	Total
Professional	3.05	.34	9.28	1.72	1.95	3.05	2.91	3.99	73.47	.23	100
Administrative	3.07	1.09	9.53	.55	15.99	3.83	5.15	3.94	56.74	.11	100
Clerical	5.98	.37	16.04	1.74	2.94	6.31	15.39	8.64	41.83	.85	100
Sales	.16	.04	1.51	.12	.10	97.42	.14	.23	.16	.05	100
Service Workers	3.08	.16	6.63	.62	1.12	16.23	3.90	1.17	66.20	.88	100
Farmers	98.90	-	.21	-	.01	.35	.01	.05	.33	.13	100
Craftsman & Production	1.82	.69	57.02	.78	9.11	4.05	13.21	.17	12.52	.61	100
Not Classified	2.25	.04	1.02	.08	.17	.51	.30	.08	.89	94.64	100
Total	46.26	.22	14.94	.44	2.57	11.36	4.37	.94	16.10	2.79	100

Source: Labor Force Sample Survey May Round 1974, CAPMAS Cairo, 1976.

Table 8

Distribution of the Labor Force by Occupation for Each Industry - 1974
(per hundreds)

Occupation / Industry	Professional	Administration	Clerical	Sales	Service Workers	Farmers	Craftsmen and Prod.	Not Classified	Total
Agriculture	159	28	303	12	255	40809	364	53	41943
Mining & Quarrying	18	10	19	3	13	-	138	1	202
Manufacturing	484	87	813	116	548	87	11398	24	13557
Electricity/Gas/Water	90	5	88	9	51	2	157	2	404
Construction	102	146	149	8	93	5	1822	4	2329
Commerce	159	35	320	7494	1341	143	810	12	10314
Transport	152	47	780	11	322	6	2641	7	3966
Finance & Insurance	208	36	438	18	97	22	35	2	856
Services	3833	518	2120	12	5471	138	2502	21	14615
Not Classified	12	1	43	4	73	52	123	2225	2533
Total	5217	913	5068	7692	8264	41264	19990	2351	90759

Table 8 (continued)

Distribution of the Labor Force by Occupation for Each Industry - 1974
(per hundreds)

Occupation / Industry	Profes- sional	Admin- istra- tion	Clerical	Sales	Service Workers	Farmers	Craftsmen and Prod.	Not Classified	Total
Agriculture	.38	.07	.72	.03	.61	97.20	.87	.13	100
Mining & Quarrying	8.91	4.95	9.40	1.48	6.43	-	68.32	.49	100
Manufacturing	3.57	.64	6.00	.85	4.04	.64	84.07	.18	100
Electricity/Gas/Water	22.28	1.24	21.78	2.23	12.62	.49	38.86	.49	100
Construction	4.38	6.27	6.40	.34	3.99	.21	78.23	.17	100
Commerce	1.54	.34	3.10	72.66	13.00	1.39	7.85	.12	100
Transport	3.83	1.18	19.67	.28	8.12	.15	66.59	.18	100
Finance & Insurance	24.30	4.20	58.17	2.10	11.33	2.57	4.09	.23	100
Services	26.23	3.54	14.50	.08	37.43	.94	17.12	.14	100
Not Classified	.47	.04	1.70	.16	2.88	2.05	4.85	87.84	100
Total	5.75	1.00	5.58	8.47	9.10	45.46	22.02	2.59	100

Source: Labor Force Sample Survey May Round 1974, CAPMAS Cairo, 1976.

Table 9

Sectoral Distribution of Fixed Investment

1959 / 60 - 1976   (continued in the following Table)

(Mill. L.E. and in Current Prices)

Sectors \ Years	1959/60	1960/61	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67	1967/68
Agriculture	16,7	16,6	17.8	20.6	30.9	32.5	30.7	31.3	24.9
Irrigation & Drainage	8.6	14.8	19.7	29.2	36.4	37.9	32.6	34.4	25.1
High Dam	4.2	6.8	14.4	24.0	34.8	18.6	19.0	16.5	12.5
Manufacturing	} 49.3	67.8	50.3	80.5	105.4	99.4	100.6	98,4	62.5
Extractive Industries									23.3
Construction	-	-	-	3.5	4.5	5.2	6.8	3.9	1.0
Electricity	6.2	5.6	6.3	11.9	35.6	53.2	61.1	69.3	52.9
Transp. & Comm. & Suez Can.	35.8	74.8	71.2	53.8	45.1	49.3	53.1	46.1	33.3
Commerce & Finance	-	-	5.0	3.7	6.5	4.7	2.7	2.6	0.7
Housing	31.2	19.1	37.8	37.6	37.4	30.5	47.5	42.3	41.7
Public Utilities	7.5	7.7	10.7	13.5	8.2	11.2	12.4	8.6	4.2
Services	12.0	12.4	18.4	21.3	27.6	21.7	17.3	12.4	10.5
Fixed Investment including land	171.5	225.6	251.2	299.6	372.4	364.7	383.8	365,8	298.0
Land	0.1	11.7	11.3	11.7	8.7	5.9	6.4	7.0	5.3
Fixed Investment	171.4	214.9	239.9	287.9	363.7	358.8	377.4	358.8	292.2
Change in Stocks				11.1			68.8	26.8	50.0
Gross Domestic Investment				299.0			446.2	385.6	342.9

Sources: Follow-up Report of the First Five-Year For Economic and Social Development 1959/60 - 64/65, July 1965.
For 1965/66 on see Ministry of Planning Memo No. 118 on the "Evaluation of planning Situation in Egypt 1965/66-75.
Also the Final Follow-up Report of 1976 Plan. Cairo 1977.

Table 9 (continued)

Sectoral Distribution of Fixed Investment
1959/60 - 1976 (continued)

(Mill. L.E. and in Current Prices)

Years Sectors	1968/69	1969/70	1970/71	1971/72	1973	1974	1975	1976
Agriculture	25.6	27.0	27.9	22.3	35.2	32.7	} 94.6	} 98.4
Irrigation & Drainage	3.5	29.1	21.0	21.6	22.4	21.5		
High Dam	9.5	5.2	3.4	-	-	-	-	-
Manufacturing	76.6	90.2	94.7	122.5	126.8	189.9	263.7	552.1
Extractive Industries	24.5	32.9	27.4	22.9	27.5	44.1	115.3	148.3
Construction	2.5	3.4	8.9	5.5	5.0	10.6	30.2	74.8
Electricity	31.6	27.3	23.1	21.3	30.3	30.0	53.3	38.4
Transp. & Com. & Suez Can.	69.5	71.4	81.2	79.6	123.0	157.0	378.6	436.1
Commerce & Finance	2.7	3.6	9.5	11.0	2.7	5.2	15.7	26.2
Housing	46.9	36.5	26.5	29.8	40.3	51.5	172.3	124.8
Public Utilities	5.8	10.9	16.5	16.9	22.8	28.7	45.1	45.0
Services	15.4	13.0	16.0	21.5	29.2	43.9	70.9	86.4
Fixed Investment including Land	343.5	355.0	361.4	377.9	465.2	645.1	1244.7	1405.5
Land	10.3	5.2	6.0	4.5	3.2	4.9	16.8	20.6
Fixed Investment	333.2	350.3	355.4	370.4	462.0	640.2	1227.9	1384.9
Change in Stocks	15.0 (-)	65.8	76.6	50.0	40.0	90.0	100.1	195.1
Gross Domestic Investment	318.2	416.1	432.0	420.4	502.0	730.2	1328.0	1580.0

Table 10

Total Investment in 1970/71 Plan and its Deliveries
According to its Components (000 L.E.)
(continued in the following table)

Components of Investment / Sector	Investment Components			Building & Construction		Machinery & Equipment	Means of Transport	Tools
	Local	Foreign	Total	Residential	Others			
1- Vertical Expansion in Agriculture	5610.3	4224.0	9834.3	-	3760.4	4498.1	920.0	5.0
2- Horizontal Expansion in Agriculture	14444.0	955.0	15399.0	-	148.0	525.0	-	-
3- Irrigation and Drainage	14736.0	1634.0	16370.5	-	1140.5	3046.0	226.3	63.7
4- High Dam	3178.0	606.0	3784.0	-	3374.0	390.0	-	-
5- Mining and Quarrying	3703.0	2110.0	5813.0	-	1395.0	2028.0	445.0	50.0
6- Crude Oil	15899.0	8736.0	24635.0	-	8262.0	6118.0	315.0	-
7- Electricity	16912.0	6776.0	23688.0	-	4015.0	19104.0	263.0	-
8- Contractors Ageancy	5803.0	1468.5	2272.0	-	50.0	1672.0	350.0	-
9- Food Processing & Tobaco	7325.0	2784.0	10109.0	-	3550.0	5767.9	510.6	-.
10- Textiles & Final Cloth	2904.0	7163.0	10067.0	-	890.0	9094.0	39.0	-
11- Paper and Printing	194.0	191.0	385.0	-	83.0	295.0	-	-
12- Chemical & Pharmaceutical	6048.0	4255.0	10303.0	-	3487.0	3879.0	324.0	54.0
13- Petrolium Refining & Coal	230.0	285.0	515.0	-	50.0	250.0	35.0	30.0
14- Non-metallic Products	2082.0	1821.0	3903.0	-	1269.0	2342.0	162.0	5.0
15- Basic Metallic	15196.0	3278.0	18474.0	-	9821.0	5922.0	192.0	153.0
16- Metallic Products	881.0	1409.0	2290.0	-	566.0	1620.0	42.0	4.0
17- Non-electric Machinery	402.0	515.0	917.0	-	210.0	443.0	22.0	-
18- Electric Machinery	650.0	1191.0	1806.0	-	305.0	1168.0	36.0	-
19- Means of Transport	845.0	1094.0	1939.0	-	469.0	1384.0	57.0	-
20- Cottage & Rural Industries	75.0	-	75.0	-	64.0	11.0	-	-
21- Other Industries	3719.3	556.0	4275.3	-	1284.0	1583.0	68.0	7.0
22- Transport & Communication	40915.3	24044.7	64960.0	-	27597.4	14426.2	21881.2	664.0
23- Suez Canal	829.0	305.0	1134.0	-	-	1109.0	25.0	-
24- Housing	26515.5	402.5	26918.0	26906.0	-	-	12.0	-
25- Public Utilities	8063.5	3379.5	11443.0	-	6027.3	4953.5	452.2	-
26- Educational Services	5843.4	584.0	6427.4	-	4009.9	2226.5	164.5	-
27- Health Services	2205.0	173.0	2378.0	-	1397.0	981.0	-	-
28- Commerce & Finance	3151.3	957.2	4108.5	-	1341.8	2040.2	592.0	-
29 - Other Services	5856.7	1361.5	7218.2	-	3817.0	1750.6	1221.6	33.0
Total	209182.3	82258.9	291441.2	26906.0	98653.3	98627.0	28355.4	1068.7

Table 10 (continued)

Total Investment in 1970/71 Plan and its Deliveries
According to its Components (000 L.E.) (continued)

Components of Investment — Sector	Furniture & Office Equipment	Land Reclamation	Land pre-marginal cultivation	Live Stock	Delayed Expenditure	Research	Minimum Level of Stock
1- Vertical Expansion in Agriculture	5.0	-	478.4	165.4	-	2.0	-
2- Horizontal Expansion in Agriculture	-	653.0	14066.0	-	-	7.0	-
3- Irrigation and Drainage	62.0	1350.6	-	-	-	211.4	-
4- High Dam	-	-	-	-	-	20.0	-
5- Mining and Quarying	10.0	-	-	-	-	1790.0	95.0
6- Crude Oil	40.0	-	-	-	900.0	-	-
7- Electricity	-	-	-	-	-	306.0	-
8- Contractors Agency	-	-	-	-	-	200.0	-
9- Food Processing and Tobaco	106.5	174.0	-	-	-	-	-
10- Textiles & Final Cloth	3.0	15.0	26.0	-	-	-	.-
11- Paper & Printing	-	7.0	-	-	-	-	-
12- Chemical & Pharmaceutical	30.0	2529.0	-	-	-	-	-
13- Petrolium Refining and Coal	8.0	102.0	40.0	-	-	-	-
14- Non-metallic Products	20.0	50.0	55.0	-	-	-	-
15- Basic Metallic	1.0	2385.0	-	-	-	-	-
16- Metallic Products	8.0	50.0	-	-	-	-	-
17- Non-electric Machinery	21.0	221.0	-	-	-	-	-
18- Electric Machinery	3.0	170.0	124.0	-	-	-	-
19- Means of Transport	7.0	22.0	-	-	-	-	-
20- Cottage & Rural Industries	-	-	-	-	-	-	-
21- Other Industries	29.0	1229.3	75.0	-	-	-	-
22- Transport & Communication	179.2	-	-	-	-	212.0	-
23- Suez Canal	-	-	-	-	-	-	-
24- Housing	-	-	-	-	-	-	-
25- Public Utilities	-	-	-	-	-	10.0	-
26- Educational Services	-	-	-	-	-	26.5	-
27- Health Services	-	-	-	-	-	-	-
28- Commerce	134.5	-	-	-	-	-	-
29- Other Services	200.0	-	-	-	-	196.0	-
Total	867.2	8957.9	14854.4	165.4	9900.0	2980.0	95.0

Table 11

Employment, Output, Value Added, Wages & Productivity in the Construction Sector, 1959/60 - 1976

Year	Gross Production	Value Added - (million LE)	Index of Prices of Building Materials 1954/60 = 100	Gross Production at Constant 1959/60 Prices (million LE)	Value Added at 1959/60 Prices (million LE)
1959/60	102	47.1	100	102	47.1
1960/61	-	44.2	104.6	-	42.4
1961/62	-	73.6	106	-	69.4
1962/63	-	83.5	105.1	-	79.4
1963/64	-	96.0	108	-	89.0
1964/65	186	92.6	115	161.7	80.5
1965/66	197.8	94.9	119	166.2	79.7
1966/67	188.1	94.3	120.6	156.0	78.2
1967/68	168.7	81.7	124	136.0	65.9
1968/69	231.6	110.3	127.5	181.6	86.5
1969/70	156.6	123.7	130.2	197.1	95.0
1970/71	155.2	121.4	133.8	190.7	90.8
1971/72	274.4	117.3	137.5	199.6	85.3
1973	277.3	107.5	153.6	180.5	70.0
1974	340.0	134.0	177.3	191.8	70.3
1975	590.0	214.9	209.5	281.2	102.5
1976	636.0	254.0	246.6	257.9	103.0

Sources: Gross production and value added were calculated from follow-up reports of the five-year plan for economic and social development 1959/60 - 1964/65 Cairo, July 1965 and follow-up reports for the years 1966/67, 67/68, 68/69, 70/71, 72, 73, 74, and 75, Ministry of Palnning, Cairo. The Index number of building material prices is the official wholesale index for building raw materials. It was originally three index numbers up - till the middle of the sixties the base was 1939, from the middle of the sixties till 1972, the base was 1959/60, the third was a new index where the base is 1970. We converted them into one index with 1959/60 as the base.

Table 1?

Employment, Output, Value Added, Wages & Productivity in the Construction Sector, 1959/60 - 1976

Year	Gross Production	Value Added (million LE)	Index of Prices of Building Materials 1954/60 = 100	Gross Production at Constant 1959/60 Prices (million LE)	Value Added at 1959/60 Prices (million LE)
1959/60	102	47.1	100	102	47.1
1960/61	-	44.2	104.6	-	42.4
1961/62	-	73.6	106	-	69.4
1962/63	-	83.5	105.1	-	79.4
1963/64	-	96.0	108	-	89.0
1964/65	186	92.6	115	161.7	80.5
1965/66	197.8	94.9	119	166.2	79.7
1966/67	188.1	94.3	120.6	156.0	78.2
1967/68	169.7	81.7	124	136.0	65.9
1968/69	231.6	110.3	127.5	181.6	86.5
1969/70	156.6	123.7	130.2	197.1	95.0
1970/71	155.2	121.4	133.8	190.7	90.8
1971/72	274.4	117.3	137.5	199.6	85.3
1973	277.3	107.5	153.6	180.5	70.0
.1974.	340.0	134.0	177.3	191.8	70.3
1975	590.0	214.9	209.5	281.2	102.5
1976	636.0	254.0	246.6	257.9	103.0

Sources: Gross production and value added were calculated from follow-up reports of the five-year plan for economic and social development 1959/60 - 1964/65 Cairo, July 1965 and follow-up reports for the years 1966/67, 67/68, 68/69, 70/71, 72, 73, 74, and 75, Ministry of Palnning, Cairo. The Index number of building material prices is the official wholesale index for building raw materials. It was originally three index numbers up - till the middle of the sixties the base was 1939, from the middle of the sixties till 1972, the base was 1959/60, the third was a new index where the base is 1970. We converted them into one index with 1959/60 as the base.